

SEARCH REQUEST FORM

Access DB# 64906

Scientific and Technical Information Center

Requester's Full Name: CAM NGUYEN Examiner #: 74787 Date: 4/20/02
 Art Unit: 1754 Phone Number 305-3923 Serial Number: 091739,802
 Mail Box and Bldg/Room Location: CP3-9B06 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

 Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: CATALYST COMPONENT FOR ADDITION POLYMERIZATION, CATALY
FOR ADDITION POLYMERIZATION, & PROCESS OF PRODUCTION
 Inventors (please provide full names): Kazuo Takaoki; Tatsuya Miyatake; Hiroshi Kuribayashi
 Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

* Please search for claims 1-23 only!
 see copy of claims & abstract attached.

Thxs,
Cam
4/20/02

STAFF USE ONLY

Searcher: EN Type of Search _____ Vendors and cost where applicable
 Searcher Phone #: _____ NA Sequence (#) _____ STN \$ 348.18
 Searcher Location: _____ AA Sequence (#) _____
 Date Searcher Picked Up: _____ Structure (#) (3) Dialog
 Date Completed: 4-23-02 Bibliographic (and) Questel/Orbit
 Searcher Prep & Review Time: 20 Litigation _____ Dr. Link _____
 Clerical Prep Time: _____ Fulltext _____ Lexis/Nexis _____
 Online Time: 105 Patent Family _____ Sequence Systems _____
 Other _____ WWW/Internet _____
 Other (specify) _____

=> file reg

FILE 'REGISTRY' ENTERED AT 18:36:34 ON 23 APR 2002
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=> d his

FILE 'LREGISTRY' ENTERED AT 15:51:08 ON 23 APR 2002

E PHTHALOCYANINE/CN
L1 1 SEA PHTHALOCYANINE/CN
L2 STR 574-93-6
L3 STR 574-93-6

FILE 'REGISTRY' ENTERED AT 17:04:13 ON 23 APR 2002

L4 50 SEA SSS SAM L2
L5 67106 SEA SSS FUL L2
SAV TEM L5 NGU802/A
L6 1 SEA SUB=L5 SSS SAM L3
L7 STR L3
L8 2 SEA SUB=L5 SSS SAM L7
L9 125 SEA SUB=L5 SSS FUL L7
SAV L9 NGU802A/A
L10 105 SEA L9 NOT CU/ELS
L11 18321 SEA L5 AND ((CO OR RH OR IR)/ELS OR B2/PG)
L12 27 SEA L9 AND L11
L13 4056 SEA L11 AND A7/PG
L14 2494 SEA L13 AND 1/NC
L15 STR L3
L16 0 SEA SUB=L5 SSS SAM L15
L17 STR L15
L18 0 SEA SUB=L5 SSS SAM L17
L19 STR L17
L20 0 SEA SUB=L5 SSS SAM L19
D QUE STAT
L21 1 SEA SUB=L5 SSS FUL L19
SAV L21 NGU802B/A

FILE 'CAOLD' ENTERED AT 17:41:55 ON 23 APR 2002

L22 1 SEA L12
L23 1 SEA L10
L24 0 SEA L21

FILE 'ZCA' ENTERED AT 17:42:09 ON 23 APR 2002

L25 76 SEA L12
L26 153 SEA L10
L27 1 SEA L21

FILE 'HCA' ENTERED AT 17:42:27 ON 23 APR 2002

L28 76 SEA L12

L29 153 SEA L10
 L30 1 SEA L21
 L31 58562 SEA (ADDITION? OR ADDN# OR RADICAL?) (3A) (POLYM? OR
 COPOLYM? OR HOMOPOLYM? OR TERPOLYM? OR RESIN? OR GUM#)

FILE 'CAOLD' ENTERED AT 17:44:56 ON 23 APR 2002
 L32 1 SEA L22 OR L23

FILE 'HCA' ENTERED AT 17:45:17 ON 23 APR 2002
 L33 QUE CAT# OR CATALY?
 L34 1 SEA L28 AND L31
 L35 1 SEA L29 AND L31
 L36 26 SEA L28 AND L33
 L37 47 SEA L29 AND L33

FILE 'LCA' ENTERED AT 17:54:35 ON 23 APR 2002
 L38 1280 SEA (POLYOLEFIN? OR POLYETHYLENE# OR POLYETHENE# OR PE
 OR POLYPROPYLENE# OR POLYPROPENE# OR PP OR POLYBUTYLENE#
 OR POLYBUTENE# OR POLYISOBUTYLENE# OR POLYISOBUTENE# OR
 L39 461 SEA (POLY(W) (ISOBUTYLENE# OR ISOBUTENE#)) /BI,AB
 PROPENE# OR BUTYLENE# OR BUTENE#) OR (ETHYLEN## OR
 PROPYLEN## OR BUTYLEN## OR ISOBUTYLENE# OR BUTENE# OR
 ISOBUTENE# OR OLEFIN##) (A) (POLYMER? OR POLYM# OR
 HOMOPOLYMER? OR HOMOPOLYM# OR RESIN?)) /BI,AB

FILE 'REGISTRY' ENTERED AT 17:55:03 ON 23 APR 2002
 ACT OLEFINS/A

 L40 (1)SEA ETHYLENE/CN
 L41 (1)SEA POLYETHYLENE/CN
 L42 (1)SEA PROPYLENE/CN
 L43 (1)SEA POLYPROPYLENE/CN
 L44 (1)SEA 1-BUTENE/CN
 L45 (1)SEA 2-BUTENE/CN
 L46 (2)SEA POLYBUTENE/CN
 L47 (2)SEA BUTADIENE/CN
 L48 (1)SEA POLYBUTADIENE/CN
 L49 (1)SEA ISOPRENE/CN
 L50 (1)SEA POLYISOPRENE/CN
 L51 13 SEA (L40 OR L41 OR L42 OR L43 OR L44 OR L45 OR L46 OR
 L47 OR L48 OR L49 OR L50)

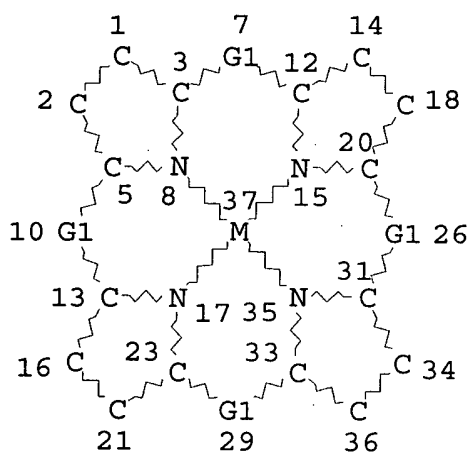
FILE 'HCA' ENTERED AT 17:57:46 ON 23 APR 2002
 L52 680106 SEA L51 OR L38 OR L39 OR OLEFIN##
 L53 299470 SEA (CHAIN? OR VINYL## OR DIENE#) (3A) (POLYM? OR COPOLYM?
 OR HOMOPOLYM? OR TERPOLYM? OR RESIN? OR GUM#)
 L54 4 SEA L28 AND (L52 OR L53)
 L55 1 SEA L36 AND (35 OR 36 OR 37 OR 38) /SC, SX
 L56 10 SEA L29 AND (L52 OR L53)
 L57 7 SEA L29 AND (35 OR 36 OR 37 OR 38) /SC, SX

L58 2 SEA L28 AND (35 OR 36 OR 37 OR 38)/SC,SX
 L59 15 SEA L30 OR L34 OR L35 OR L54 OR L55 OR L56 OR L57 OR L58
 L60 24 SEA L36 NOT L59
 L61 30126 SEA HARTREE# OR FOCK#
 L62 0 SEA L29 AND L61

FILE 'REGISTRY' ENTERED AT 18:36:34 ON 23 APR 2002

=> d l9 que stat

L2 STR



VAR G1=C/SI/GE/SN/PB/N/P/AS/SB/BI

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

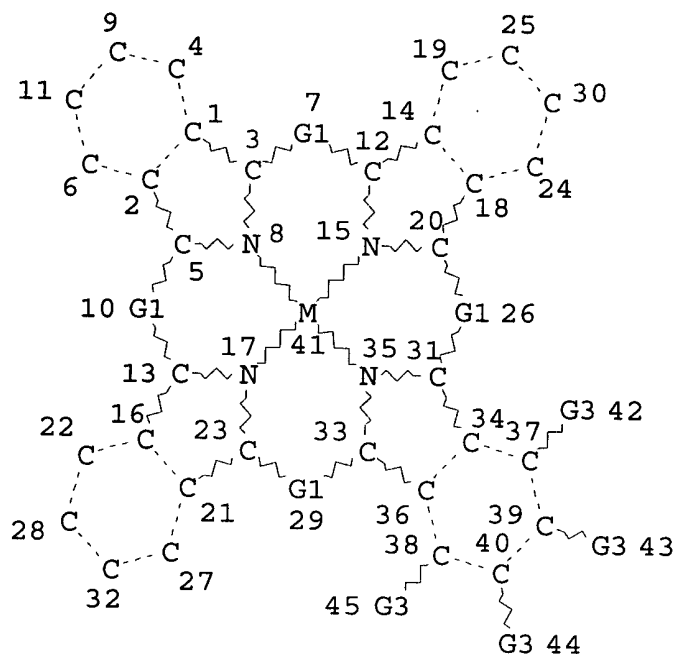
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 25

STEREO ATTRIBUTES: NONE

L5 67106 SEA FILE=REGISTRY SSS FUL L2

L7 STR



VAR G1=C/SI/GE/SN/PB/N/P/AS/SB/BI
 VAR G3=F/CL/BR/I
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 45

STEREO ATTRIBUTES: NONE
 L9 125 SEA FILE=REGISTRY SUB=L5 SSS FUL L7

100.0% PROCESSED 705 ITERATIONS
 SEARCH TIME: 00.00.04

125 ANSWERS

=> file caold
 FILE 'CAOLD' ENTERED AT 18:36:59 ON 23 APR 2002
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=> d l32 1 all hitstr

L32 ANSWER 1 OF 1 CAOLD COPYRIGHT 2002 ACS
 AN CA51:9171f CAOLD

TI copper phthalocyanines (solvent-stable)
PA Badische Anilin- & Soda-Fabrik Akt.-Ges.
DT Patent

PATENT NO. KIND DATE

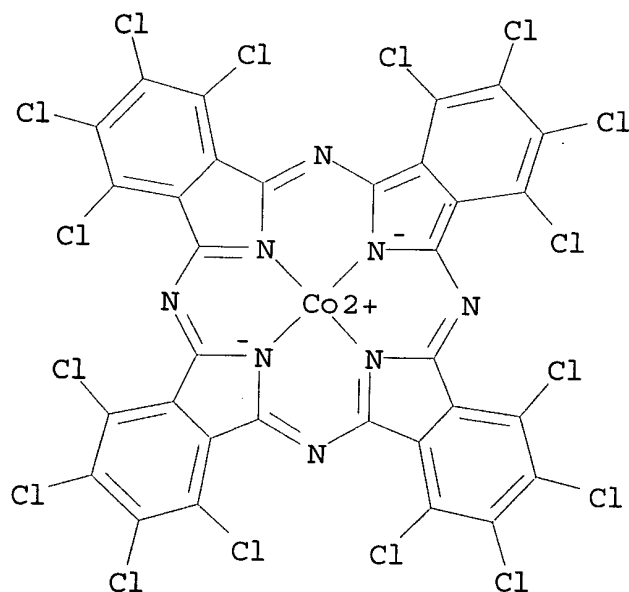
PI GB 761718

IT 27679-39-6

IT 27679-39-6

RN 27679-39-6 CAOLD

CN Cobalt, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecachloro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)-(9CI) (CA INDEX NAME)



=> file hca

FILE 'HCA' ENTERED AT 18:37:32 ON 23 APR 2002

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=> d 159 1-15 cbib abs hitstr hitind

L59 ANSWER 1 OF 15 HCA COPYRIGHT 2002 ACS

135:77289 Porphyrin **catalyst** components for **addition**

polymerization. Takaoki, Kazuo; Miyatake, Tatsuya;

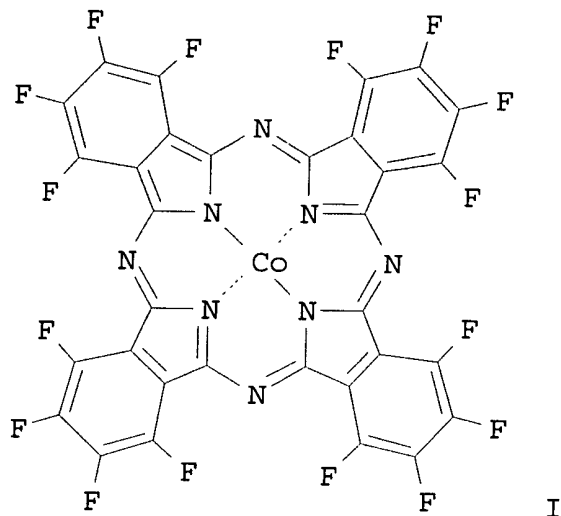
Kuribayashi, Hiroshi (Sumitomo Chemical Company, Limited, Japan).

Eur. Pat. Appl. EP 1113025 A2 20010704, 25 pp. DESIGNATED STATES:

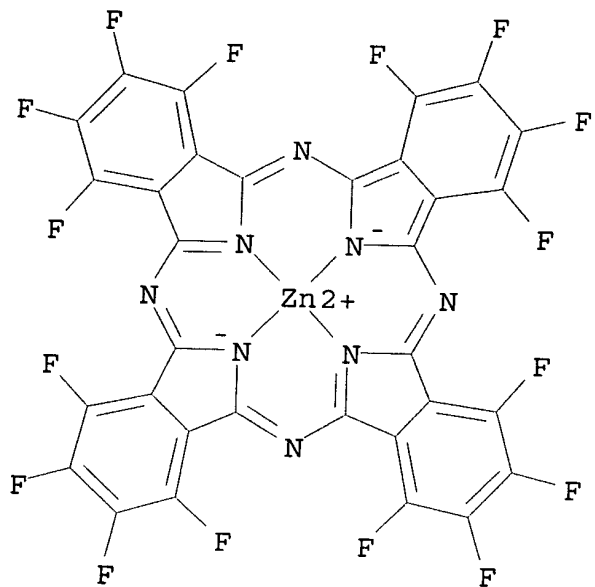
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP

2000-311540 20001221. PRIORITY: JP 1999-370679 19991227.

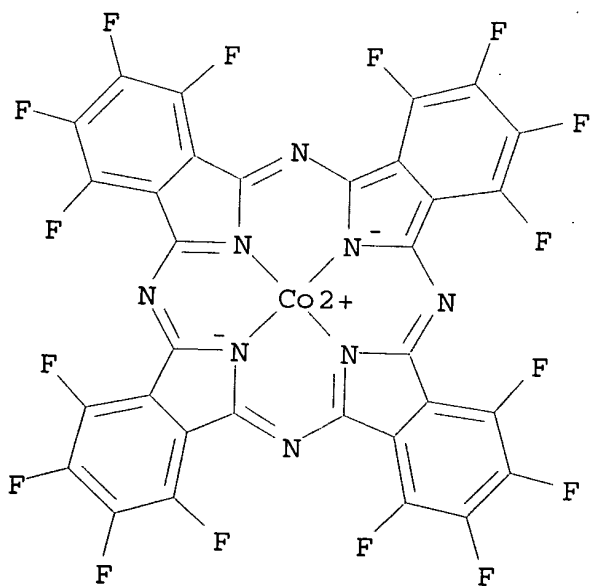
GI



- AB A **catalyst** component for **addn. polymn.** comprises a compd. (A) contg. an atom of Groups II to XII or the Lanthanide series in which the lowest energy level of an unoccupied MO having the valence p-type AO of the atom of Groups II to XII or the Lanthanide series as a main component (wherein the coeff. represented by a linear combination is 0.4 or more) is calcd. to be 0.008 at. unit or less by the d. functional calcn. method, a **catalyst** for **addn. polymn.** obtainable by contacting the same with a specific metal compd., and a process for producing an **addn. polymer** with the **catalyst**. Examples of compd. (A) are a porphyrin or phthalocyanine complex in which the metal atom of Groups II to XII or the Lanthanide series is coordinated. Ethylene and 1-hexene were copolymd. in the presence of iso-Bu₃Al, ethylenebis(indenyl)zirconium dichloride, and I.
- IT 31396-84-6 52629-20-6
(porphyrin **catalyst** components for **addn. polymn.**)
- RN 31396-84-6 HCA
- CN Zinc, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecafluoro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)

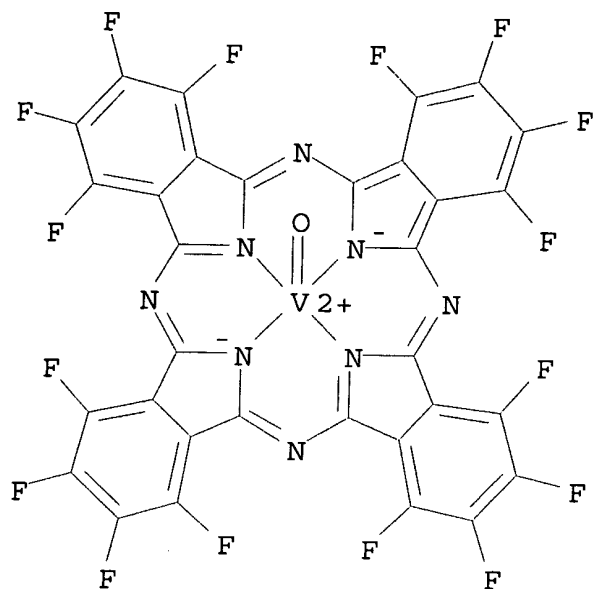


RN 52629-20-6 HCA
 CN Cobalt, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecafluoro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)



IC ICM C08F004-646
 ICS C08F004-70; C08F210-16
 CC 35-3 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 67

- ST porphyrin catalyst olefin polymn
 IT Polymerization catalysts
 (porphyrin catalyst components for addn.
 polymn.)
 IT Metallocenes
 (porphyrin catalyst components for addn.
 polymn.)
 IT 100-99-2, Triisobutylaluminum, uses 31396-84-6
 52629-20-6 112243-78-4, Ethylenebis(indenyl)zirconium
 dichloride
 (porphyrin catalyst components for addn.
 polymn.)
 IT 25213-02-9P, ethylene-1-hexene copolymer
 (porphyrin catalyst components for addn.
 polymn.)
- L59 ANSWER 2 OF 15 HCA COPYRIGHT 2002 ACS
 132:94654 Near-infrared ray-absorbing phthalocyanine metal complex
 derivatives and their uses. Matsuzaki, Yoriaki; Kiyono, Kazuhiro;
 Oi, Tatsu (Mitsui Chemicals Inc., Japan; Yamamoto Chemicals Inc.).
 Jpn. Kokai Tokyo Koho JP 2000017184 A2 20000118, 20 pp.
 (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-183890 19980630.
 AB The title derivs. with good soly. in solvents including water and
 alcs., useful for near-IR ray cutting applications such as coatings,
 plastic sheets and films, etc., are groups of phthalocyanine metal
 complexes which bear ionic substituents comprising cationic groups
 based on pyridinium or ammonium groups and counter anionic groups
 (halogen, sulfonium and carboxy ions) via S and N bondings. Thus,
 heating C.I. Pigment Green 7 10.0 with 2-(n-octylamino)thiophenol
 19.0, 2-aminothiophenol 5.6, and CaCO₃ 39.2 g in 200 mL DMF at
 200.degree. for 10 h, cooling, pptg. the resulting reaction product
 (P) in MeOH, washing, drying, mixing 25.6 g P with 12 g nicotinic
 acid at 90.degree. for 3 h and working up gave a substituted
 phthalocyanine Cu complex which was mixed with di-Me sulfate to give
 a near IR-absorbing salt.
 IT 128675-60-5DP, reaction products with alkylaminobenzenethiol
 and nicotinic acids
 (manuf. of near-IR ray-absorbing phthalocyanine metal complex
 derivs. and uses)
 RN 128675-60-5 HCA
 CN Vanadium, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecafluoro-
 29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa
 .N32]oxo-, (SP-5-12)- (9CI) (CA INDEX NAME)

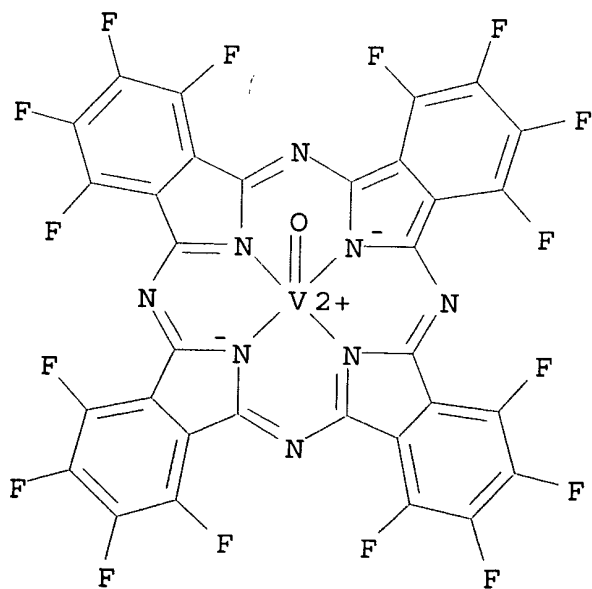


IT 128675-60-5

(reactant; manuf. of near-IR ray-absorbing phthalocyanine metal complex derivs. and uses)

RN 128675-60-5 HCA

CN Vanadium, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecafluoro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]oxo-, (SP-5-12)- (9CI) (CA INDEX NAME)



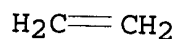
IC ICM C09B047-20

- ICS C09B047-22; C09B062-483; C09K003-00
 CC 41-7 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)
 Section cross-reference(s): 38, 42
 IT 128675-60-5DP, reaction products with alkylaminobenzenethiol and nicotinic acids
 (manuf. of near-IR ray-absorbing phthalocyanine metal complex derivs. and uses)
 IT 59-67-6, Nicotinic acid, reactions 74-88-4, Methyl iodide, reactions 77-78-1, Dimethyl sulfate 79-04-9, Chloroacetyl chloride 80-48-8, Methyl tosylate 80-73-9, N,N'-Dimethylimidazolidinone 102-71-6, Triethanolamine, reactions 137-07-5, 2-Aminothiophenol 1328-53-6, C.I. Pigment Green 7 78632-72-1D, copper/vanadium phthalocyanine fused ring derivs. 128675-60-5 147838-34-4, 2-Octylaminothiophenol
 (reactant; manuf. of near-IR ray-absorbing phthalocyanine metal complex derivs. and uses)
 L59 ANSWER 3 OF 15 HCA COPYRIGHT 2002 ACS
 128:326528 Silver implantable medical device. Bates, Brian L.; Osborne, Thomas A.; Roberts, Joseph W.; Fearnot, Neal E.; Kozma, Thomas G.; Ragheb, Anthony O.; Voorhees, William D., III (Cook Inc., USA; Med Institute, Inc.). PCT Int. Appl. WO 9817331 A1 19980430, 61 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1997-US19188 19971023. PRIORITY: US 1996-29158 19961024; US 1996-741565 19961031; US 1997-803843 19970224.
 AB A silver implantable medical device includes a structure adapted for introduction into the vascular system, esophagus, trachea, colon, biliary tract, or urinary tract; at least one layer of a bioactive material deposited on one surface of structure; and at least one porous layer deposited over the bioactive material layer deposited on one surface of structure and the bioactive-material-free surface. Also included is a layer or impregnation of silver. Preferably, the structure is a coronary stent. The porous layer is comprised of a polymer applied preferably by vapor or plasma deposition and provides a controlled release of the bioactive material. It is particularly preferred that the polymer is a polyamide, parylene or a parylene deriv., which is deposited without solvents, heat or catalysts, merely by condensation of a monomer vapor. Silver is included as a base material, coating or included in a carrier, drug, medicament material utilized with the implantable stent.
 IT 9002-88-4, Polyethylene 31396-84-6
 (silver implantable medical device)
 RN 9002-88-4 HCA
 CN Ethene, homopolymer (9CI) (CA INDEX NAME)

CM 1

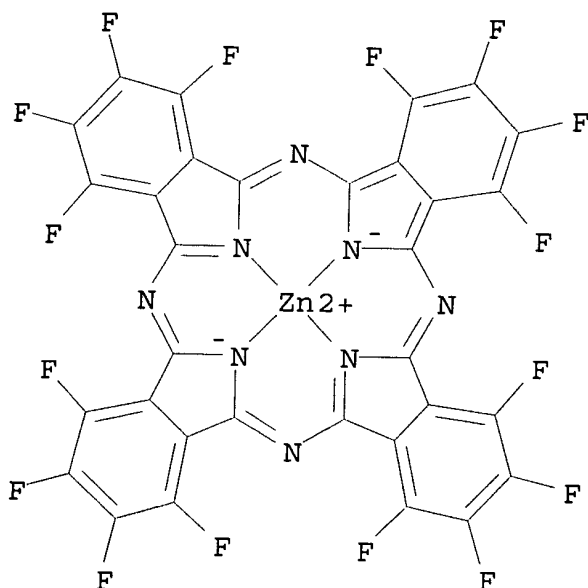
CRN 74-85-1

CMF C2 H4



RN 31396-84-6 HCA

CN Zinc, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecafluoro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)



IC ICM A61L029-00

ICS A61L031-00; A61L027-00; A61L033-00

CC 63-6 (Pharmaceuticals)

IT 50-02-2, Dexamethasone 50-78-2, Aspirin 50-81-7, Ascorbic acid, biological studies 51-61-6, Dopamine, biological studies 59-02-9, .alpha.-Tocopherol 64-86-8, Colchicine 67-68-5, DmsO, biological studies 70-51-9, Deferoxamine 79-10-7D, Acrylic acid, polymers 79-41-4D, Methacrylic acid, polymers 106-60-5, 5-Aminolevulinic acid 1177-87-3, Dexamethasone acetate 1501-84-4, Rimantadine hydrochloride 1675-54-3D, Bisphenol A diglycidyl ether, polymers 2392-39-4, Dexamethasone sodium phosphate 7439-88-5, Iridium, biological studies 7440-06-4, Platinum, biological studies 7440-22-4, Silver, biological studies 7440-25-7, Tantalum, biological studies 7440-32-6, Titanium, biological studies 7440-33-7, Tungsten, biological studies 7440-39-3D, Barium, compds. 7440-44-0, Carbon, biological studies 7440-57-5, Gold, biological studies 7553-56-2D, Iodine, compds.

7761-88-8, Silver nitrate, biological studies 8001-27-2, Hirudin
 9002-84-0, Ptf 9002-88-4, Polyethylen
 9004-35-7, Cellulose acetate 9004-70-0, Cellulose nitrate
 9005-49-6, Heparin, biological studies 9054-89-1, Superoxide
 dismutase 10098-91-6, Yttrium 90, biological studies 10102-43-9,
 Nitric oxide, biological studies 10198-40-0, Cobalt-60, biological
 studies 12597-68-1, Stainless steel, biological studies
 12606-02-9, Inconel 14596-37-3, Phosphorus 32, biological studies
 14694-69-0, Iridium-192, biological studies 15421-84-8, Trepidil
 15750-15-9, Indium 111, biological studies 22112-79-4
 22260-51-1, Bromocriptine mesylate 24980-41-4, Polycaprolactone
 25038-59-9, Polyethylene terephthalate, biological studies
 25248-42-4, Polycaprolactone 25322-68-3, Peg 25322-69-4,
 Polypropylene oxide 25722-33-2, Parylene 26009-03-0,
 Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-
 ethanediyl)] 26100-51-6, Polylactic acid 26124-68-5,
 Polyglycolic acid 30516-87-1, Azt 31396-84-6
 33069-62-4, Taxol 37187-49-8, Cytochalasin 51589-12-9
 52013-44-2, Nitinol 54965-24-1, Tamoxifen citrate 55142-85-3,
 Ticlopidine 59277-89-3, Aciclovir 62669-70-9, Rhodamine 123
 66104-23-2, Pergolide mesylate 71142-71-7 74863-84-6, Argatroban
 79217-60-0, Cyclosporin 104227-87-4, Famciclovir 107910-75-8,
 Ganciclovir sodium 128171-16-4, Hydroxybutyric acid-hydroxyvaleric
 acid copolymer 128270-60-0, Hirulog
 (silver implantable medical device)

L59 ANSWER 4 OF 15 HCA COPYRIGHT 2002 ACS

127:360076 Composition for invisible ink responsive to infra-red light.
 Auslander, Judith D. (Pitney Bowes Inc., USA). U.S. US 5684069 A
 19971104, 7 pp., Cont.-in-part of U.S. Ser. No. 159,065, abandoned.
 (English). CODEN: USXXAM. APPLICATION: US 1994-310905 19940922.
 PRIORITY: US 1994-159065 19940112.

AB The thermal transfer ink compn., having .gtoreq.60% reflectance or
 transmission % T in the visible range 400-700 nm and (nearly)
 transparent comprises mixts. of substituted phthalocyanine dyes
 0.5-5, urethane derivs. of modified oxidized synthetic petroleum wax
 that solubilized the phthalocyanine dyes 60-80, carnauba wax 4-15,
 and Et vinyl acetate polymer (I) 10-20%. Thus,
 an ink compn. was prepd. from a mixt. of a donor group (amine, OH,
 alkoxy or thiol)-substituted phthalocyanine (Mg, Cu or Fe complex)
 5, Polywax 500 64.1, WB 17 7.2, carnauba wax 8.2 and I 15.5%.

IT 9002-88-4, Polywax 500 50662-67-4D, derivs.
 198542-04-0D, derivs.

(compn. for invisible ink responsive to infra-red light)

RN 9002-88-4 HCA

CN Ethene, homopolymer (9CI) (CA INDEX NAME)

CM 1

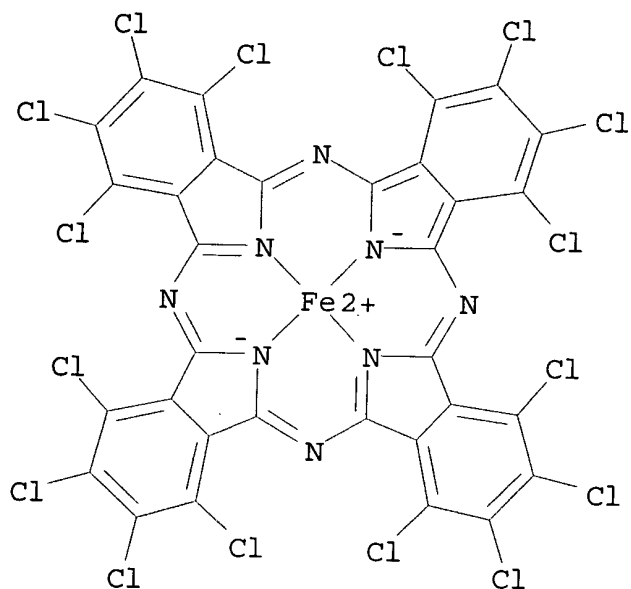
CRN 74-85-1

CMF C2 H4



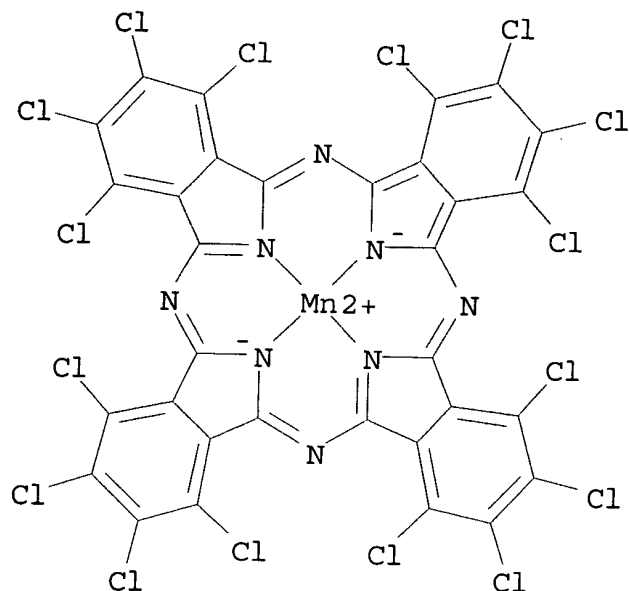
RN 50662-67-4 HCA

CN Iron, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecachloro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)-(9CI) (CA INDEX NAME)



RN 198542-04-0 HCA

CN Manganese, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecachloro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)-(9CI) (CA INDEX NAME)



IC ICM C08K005-34
 NCL 524088000
 CC 42-12 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 37
 IT 9002-88-4, Polywax 500 14832-14-5D, derivs. 24937-78-8,
 Ethylene-vinyl acetate copolymer
 50662-67-4D, derivs. 198542-04-0D, derivs.
 (compn. for invisible ink responsive to infra-red light)

L59 ANSWER 5 OF 15 HCA COPYRIGHT 2002 ACS

126:318432 Near-infrared ray-absorbing compounds with high durability and their use. Oi, Ryu; Seino, Kazuhiro; Mochizuki, Yuko; Takuma, Keisuke (Mitsui Toatsu Chemicals, Incorporated, Japan; Yamamoto Chemicals, Inc.). Eur. Pat. Appl. EP 767221 A1 19970409, 27 pp. DESIGNATED STATES: R: DE, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1996-115629 19960930. PRIORITY: JP 1995-254925 19951002; JP 1995-265245 19951013.

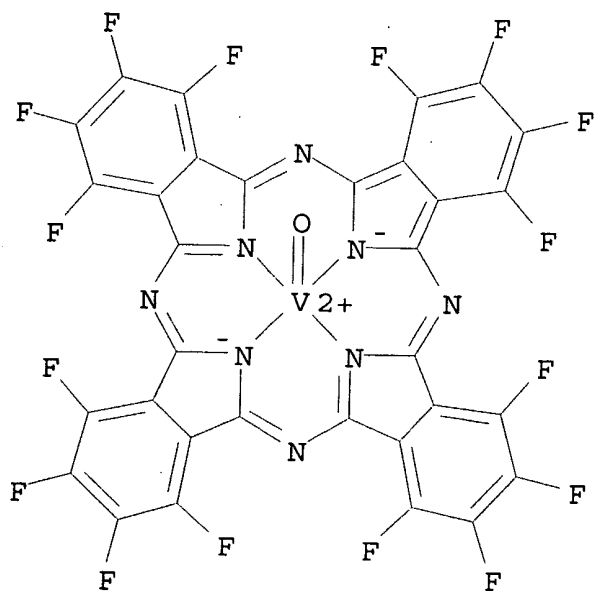
AB A near-IR ray-absorbing compd. having improved soly. and light resistance, useful in optical recording and for heat-shielding windows, can be obtained by amidating and/or imidating the amino groups on substituents of a phthalocyanine. The desired compd. can be easily prepd. by reacting a phthalocyanine having eliminatable groups such as a halogen atoms with a 2-aminothiophenol deriv., and then amidating and/or imidating some or all of the remaining primary or secondary amino groups. Moreover, substituents on the benzene rings of the phthalocyanine can be coordinated with metals, whereby the absorption wavelength can be broadened and the near-IR rays in a long-wave range can be absorbed. Thus, 8.87 mmol C.I. Pigment Green 7 was heated at 120.degree. in DMF with 142 mmol 2-HSC6H4NH(CH2)7Me and 284 mmol K2CO3 and the product was pptd., dissolved in pyridine,

and acetylated with AcCl to give a pigment with λ_{max} 943 nm in PhMe. The pigment had 4 fused N-octyl-1,4-benzothiazine rings, 5 2-(N-octylacetamido)phenylthio substituents, and 3 residual Cl atoms on a Cu phthalocyanine nucleus.

IT 128675-60-5DP, Vanadyl hexadecafluorophthalocyanine, condensation products with aminobenzenethiols, acylated (prepn. of light-resistant near-IR-absorbing phthalocyanine pigments)

RN 128675-60-5 HCA

CN Vanadium, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecafluoro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]oxo-, (SP-5-12)- (9CI) (CA INDEX NAME)



IC ICM C09B047-20

ICS C07D487-22

ICI C07D487-22, C07D259-00, C07D209-00

CC 41-7 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)

Section cross-reference(s): 74

IT 9011-87-4, Delpet 80N 25038-59-9, Poly(ethylene terephthalate), uses 159704-36-6, Panlite K 1300Z (filters contg. light-resistant near-IR-absorbing phthalocyanine pigments)

IT 60-23-1DP, 2-Aminoethanethiol, condensation products with halophthalocyanines, acylated 75-36-5DP, Acetyl chloride, reaction products with condensation products of aminobenzenethiols and halophthalocyanines 85-44-9DP, Phthalic anhydride, reaction products with condensation products of aminobenzenethiols and halophthalocyanines 98-88-4DP, Benzoyl chloride, reaction products with condensation products of aminobenzenethiols and halophthalocyanines 108-24-7DP, Acetic anhydride, reaction

products with condensation products of aminobenzenethiols and halophthalocyanines 137-07-5DP, 2-Aminothiophenol, condensation products with halophthalocyanines, acylated 329-15-7DP, p-(Trifluoromethyl)benzoyl chloride, reaction products with condensation products of aminobenzenethiols and halophthalocyanines 760-67-8DP, 2-Ethylhexanoyl chloride, reaction products with condensation products of aminobenzenethiols and halophthalocyanines 1328-53-6DP, C.I. Pigment Green 7, condensation products with aminobenzenethiols, acylated 52797-55-4DP, 2-(Benzylamino)thiophenol, condensation products with halophthalocyanines, acylated 116322-82-8DP, condensation products with aminobenzenethiols, acylated 128675-60-5DP, Vanadyl hexadecafluorophthalocyanine, condensation products with aminobenzenethiols, acylated 147838-34-4DP, 2-(Octylamino)thiophenol, condensation products with halophthalocyanines, acylated (prepn. of light-resistant near-IR-absorbing phthalocyanine pigments)

L59 ANSWER 6 OF 15 HCA COPYRIGHT 2002 ACS

125:339613 Langmuir-Blodgett film formation and spectroscopic characterization of sulfonated derivatives of zinc phthalocyanine. Souto, J.; Gorbunova, Y.; Rodriguez-Mendez, M. L.; Kudrevich, S.; van Lier, J. E.; de Saja, J. A. (Dep. Fisica Materia Condensada, Univ. Valladolid, Valladolid, 47011, Spain). J. Raman Spectrosc., 27(9), 649-655 (English) 1996. CODEN: JRSPAF. ISSN: 0377-0486.

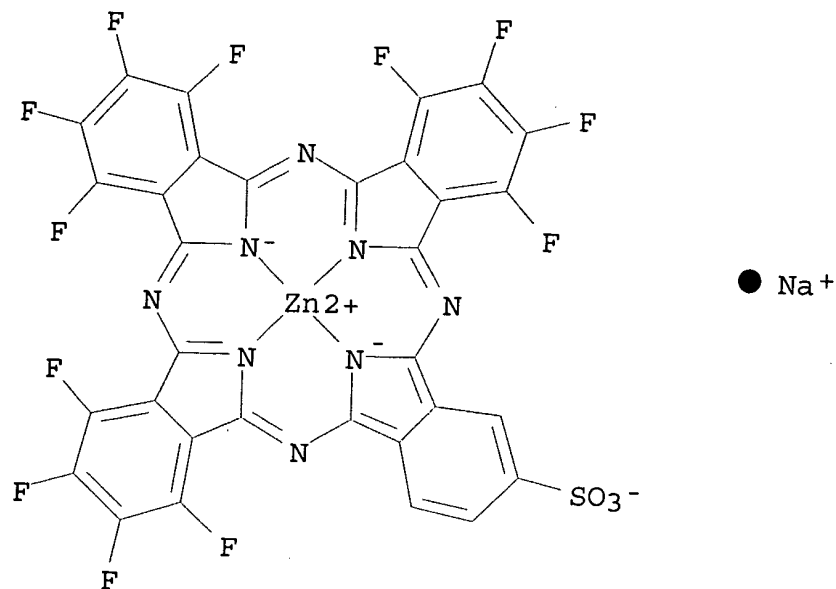
AB Langmuir film formation characteristics of 2 sulfonated Zn phthalocyanine derivs. (Zn 11,18,25-tri(tert-butyl)-4-sulfophthalocyanine (Na[ZnPctSO3]) and Zn dodecafluoro-4-sulfophthalocyanine (Na[ZnPcF12SO3])) were studied. The surface pressure-area isotherm of Na[ZnPctSO3] showed distinct gaseous, liq. and solid phases, while that corresponding to Na[ZnPcF12SO3] followed the trend of other phthalocyanine derivs. that lack amphiphilic character. The floating films were transferred to several substrates. The starting materials and the Langmuir-Blodgett films were characterized by using UV-visible, FTIR, Raman, resonant Raman, and surface-enhanced resonant Raman spectroscopy. A relation between the mol. organization in the films and the nature of the substituents is inferred from the spectroscopic data.

IT 159902-34-8

(zinc sulfophthalocyanine Langmuir-Blodgett film spectra and structure)

RN 159902-34-8 HCA

CN Zincate(1-), [8,9,10,11,15,16,17,18,22,23,24,25-dodecafluoro-29H,31H-phthalocyanine-2-sulfonato(3-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, sodium, (SP-4-2)-(9CI) (CA INDEX NAME)



CC 66-1 (Surface Chemistry and Colloids)

Section cross-reference(s): 36, 73

IT 159902-31-5 159902-34-8

(zinc sulfophthalocyanine Langmuir-Blodgett film spectra and structure)

L59 ANSWER 7 OF 15 HCA COPYRIGHT 2002 ACS

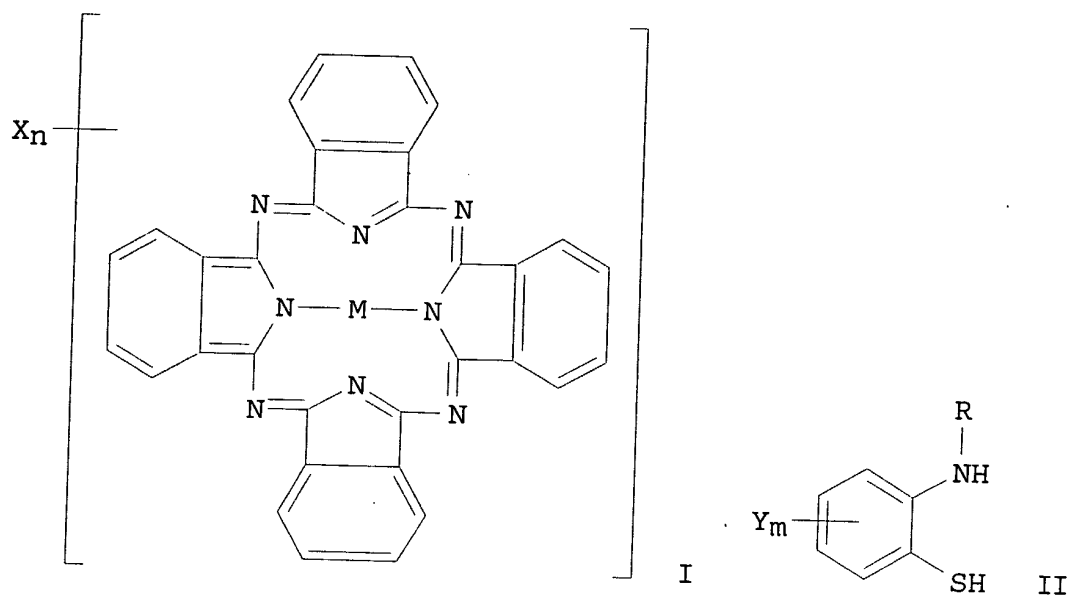
125:331554 Near infrared-absorbing compounds and their manufacture.

Ooi, Tatsu; Takuma, Hirosuke (Mitsui Toatsu Chemicals, Japan; Yamamoto Chemicals Inc). Jpn. Kokai Tokkyo Koho JP 08225752 A2

19960903 Heisei, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION:

JP 1995-294337 19951113. PRIORITY: JP 1994-283611 19941117.

GI

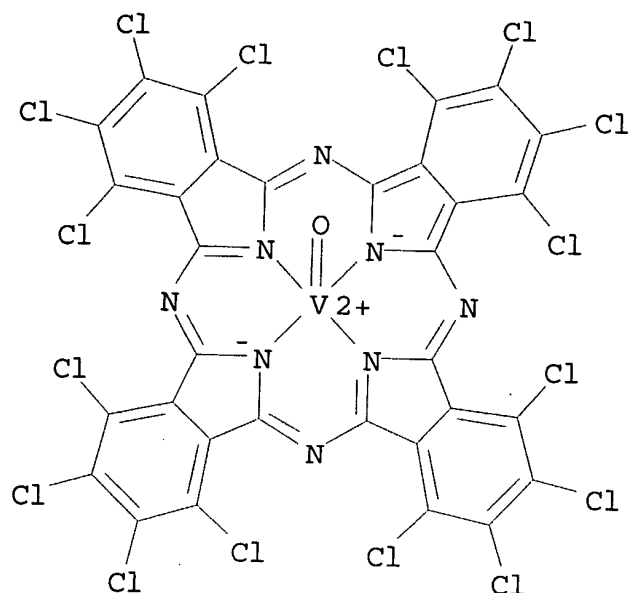


AB The compds. are manufd. by reaction of phthalocyanines I [X = halo, OH, (un)substituted alkoxy, (un)substituted aryloxy, (un)substituted alkylthio, (un)substituted arylthio, (un)substituted alkylamino, (un)substituted arylamino, (un)substituted alkylarylamino; neighboring 2 X may form 5- or 6-membered ring with hetero atom; .gtoreq.4 X are halo; n = 4-16; M = bivalent metal, 3- or 4-valent substituted metal, oxymetal] and .gtoreq.1 2-aminothiophenol derivs. II [R = H, (un)substituted alkyl, (un)substituted aryl; Y = (un)substituted alkyl, (un)substituted aryl, (un)substituted alkoxy, (un)substituted aryloxy; m = 0-4; when .gtoreq.2 II is used, all R are not H at the same time] in the presence of bases. Resin compns. contg. the compds. and heat-absorbing filters contg. the compds. are also claimed. Thus, 40.0 g 2-aminothiophenol was treated with 41.0 g caprylaldehyde in EtOH in the presence of NaBH₄ to give 70.4 g 2-(octylamino)thiophenol, 33.7 g of which was treated with 10.0 g C.I. Pigment Green 7 in DMF in the presence of K₂CO₃ to give 26.5 g product (III; .lambda.max 940 nm in PhMe). PET was blended with III at a 1:0.02 ratio, melt extruded, and stretched biaxially to give a filter showing good absorption at 700-1100 nm.

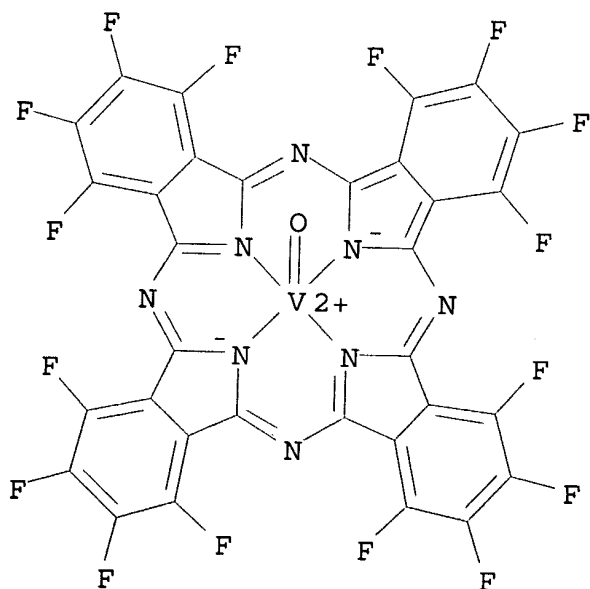
IT 28107-38-2 128675-60-5

(manuf. of near IR-absorbing phthalocyanine derivs. for heat-absorbing filters)

RN 28107-38-2 HCA
 CN Vanadium, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecachloro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]oxo-, (SP-5-12)- (9CI) (CA INDEX NAME)



RN 128675-60-5 HCA
 CN Vanadium, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecafluoro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]oxo-, (SP-5-12)- (9CI) (CA INDEX NAME)



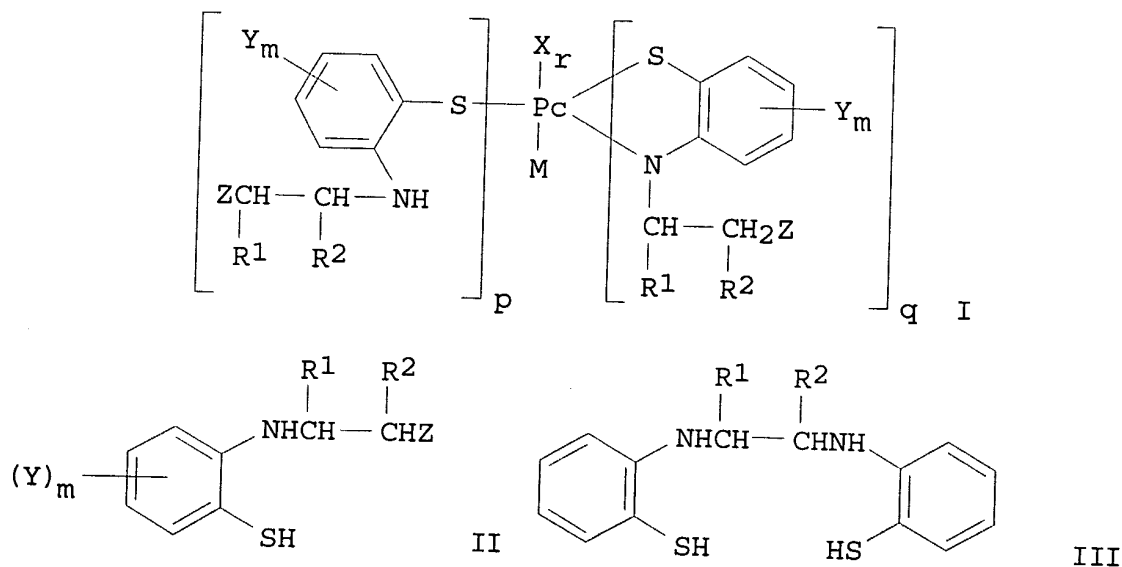
IC ICM C09B047-22
 ICS C07D487-22; C09B047-20; C09K003-00; G02B005-22
 CC 41-7 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)

- IT 25038-59-9, Poly(ethylene terephthalate), properties
(manuf. of near IR-absorbing phthalocyanine derivs. for heat-absorbing filters)
- IT 100-52-7, Benzaldehyde, reactions 124-13-0, Caprylaldehyde
137-07-5, 2-Aminothiophenol 1328-53-6, C.I. Pigment Green 7
1330-37-6, C.I. Pigment Green 37 14302-13-7, C.I. Pigment Green 36
21749-63-3, 2-Methylaminothiophenol 28107-38-2
99969-65-0, 1-Piperidinepropanal 116322-82-8 128675-60-5
183160-08-9 183160-09-0
(manuf. of near IR-absorbing phthalocyanine derivs. for heat-absorbing filters)

L59 ANSWER 8 OF 15 HCA COPYRIGHT 2002 ACS

125:170865 Transition metal-phthalocyanine-based near-IR-absorbing dyes for use in IR-absorbing polymers or glass articles. Oi, Ryu; Seino, Kazuhiro; Takuma, Keisuke (Mitsui Toatsu Chemicals, Incorporated, Japan; Yamamoto Chemicals, Inc.). Eur. Pat. Appl. EP 718375 A2 19960626, 25 pp. DESIGNATED STATES: R: DE, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1995-119802 19951215. PRIORITY: JP 1994-318191 19941221.

GI



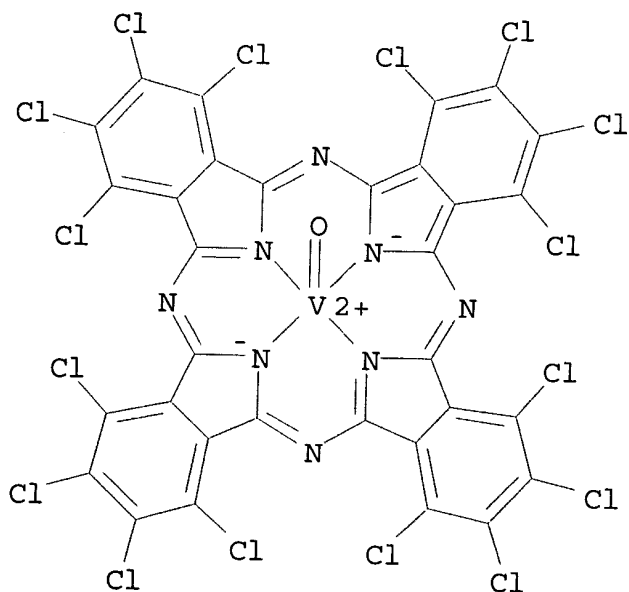
AB A phthalocyanine near-IR absorber are of general structure I [R1,R2 = H, substituted or unsubstituted alkyl or (un)substituted aryl; Y = (un)substituted alkyl, (un)substituted aryl, (un)substituted alkoxy, or (un)substituted aryloxy; m = 0-4; Pc = phthalocyanine nucleus; Z = -SH or -NHR3 (R3 = H, (un)substituted alkyl group, or

(un)substituted aryl group; X = halogen, OH, (un)substituted alkoxy, (un)substituted aryloxy, (un)substituted alkylthio, (un)substituted arylthio, (un)substituted alkylamino, (un)substituted arylamino, and (un)substituted alkylarylamino); adjacent pairs of Xs may form a 5- or 6-membered ring via two hetero atoms; M = a divalent metal atom, a substituted trivalent or tetravalent metal, or an oxymetal atom; p = 1-16; q = 0-8; r = 0-8; and p + 2q + r ≤ 16]. The dyes, which are prepd. by reaction of a metal phthalocyanine nucleus with bidentate ligands II and/or III in the presence of a base, can be incorporated into laminated glass products or into extruded polymer compns. to give an IR-absorbing product or filter.

IT 28107-38-2DP, reaction products with amino-substituted benzenethiols and metal salts 128675-60-5DP, reaction products with amino-substituted benzenethiols and metal salts (near-IR-absorbing; transition metal-phthalocyanine-based near-IR-absorbing dyes for use in IR-absorbing polymers or glass articles)

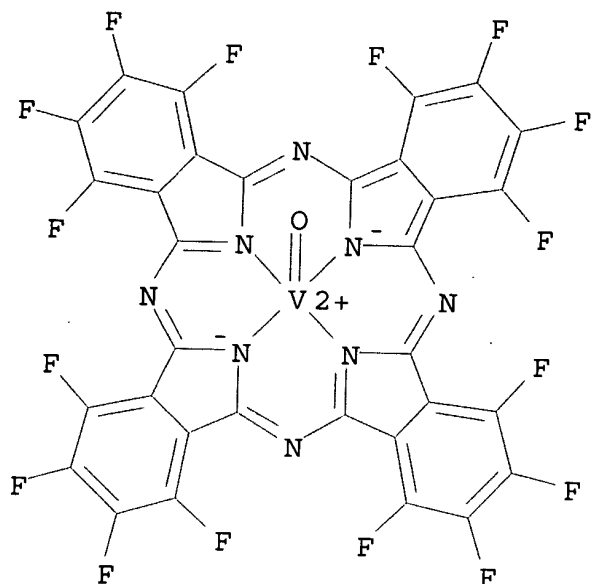
RN 28107-38-2 HCA

CN Vanadium, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecachloro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]oxo-, (SP-5-12)- (9CI) (CA INDEX NAME)



RN 128675-60-5 HCA

CN Vanadium, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecafluoro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]oxo-, (SP-5-12)- (9CI) (CA INDEX NAME)



- IC ICM C09B047-20
ICS C08K005-37; G02B005-22; C07D487-22
ICI C07D487-22, C07D259-00, C07D209-00
CC 41-7 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)
Section cross-reference(s): 28, 38, 57
IT **Vinyl acetal polymers**
(butyrals, glass laminates contg.; transition metal-phthalocyanine-based near-IR-absorbing dyes for use in IR-absorbing polymers or glass articles)
IT 9011-14-7P, Poly(methyl methacrylate) 25038-59-9P, **Polyethylene** terephthalate, preparation (extruded; transition metal-phthalocyanine-based near-IR-absorbing dyes for use in IR-absorbing polymers or glass articles)
IT 80-73-9DP, 1,3-Dimethyl-2-imidazolidinone, reaction products with amino-substituted benzenethiols, metal salts, and phthalocyanines 1328-53-6DP, C.I. Pigment Green 7, reaction products with amino-substituted benzenethiols and metal salts 7758-89-6DP, Cuprous chloride, reaction products with 2-amino-substituted benzenethiols and phthalocyanines 14302-13-7DP, C.I. Pigment green 38, reaction products with amino-substituted benzenethiols and metal salts 28107-38-2DP, reaction products with amino-substituted benzenethiols and metal salts 39737-11-6DP, reaction products with metal salts and phthalocyanines 53194-62-0DP, reaction products with metal salts and phthalocyanines 128675-60-5DP, reaction products with amino-substituted benzenethiols and metal salts 147838-34-4DP, reaction products with amino-substituted benzenethiols, metal salts, and phthalocyanines 180405-85-0DP, reaction products with

amino-substituted benzenethiols, metal salts, and phthalocyanines
180405-86-1DP, reaction products with metal salts and
phthalocyanines 180405-87-2P 180405-88-3DP, reaction products
with metal salts and phthalocyanines
(near-IR-absorbing; transition metal-phthalocyanine-based
near-IR-absorbing dyes for use in IR-absorbing polymers or glass
articles)

L59 ANSWER 9 OF 15 HCA COPYRIGHT 2002 ACS

125:109074 Photodynamic therapy of tumors with hexadecafluoro zinc
phthalocyanine formulated in PEG-coated poly(lactic acid)
nanoparticles. Allemann, Eric; Rousseau, Jacques; Brasseur, Nicole;
Kudrevich, Svetlana V.; Lewis, Karina; Van Lier, Johan E. (School
Pharmacy, University Geneva, Geneva, Switz.). Int. J. Cancer,
66(6), 821-824 (English) 1996. CODEN: IJCNAW. ISSN: 0020-7136.
Hexadecafluoro zinc phthalocyanine (ZnPcF16), a second-generation
sensitizer for the photodynamic therapy (PDT) of cancer, was
formulated in **polyethylene**-glycol-coated poly(lactic acid)
nanoparticles (PEG-coated PLA-NP) and tested in EMT-6 tumor-bearing
mice for its photodynamic activity. The tumor response was compared
to that induced by the same dye formulated as a Cremophor EL (CRM)
emulsion. Formulation in the biodegradable NP improved PDT response
of the tumor while providing prolonged tumor sensitivity towards
PDT.

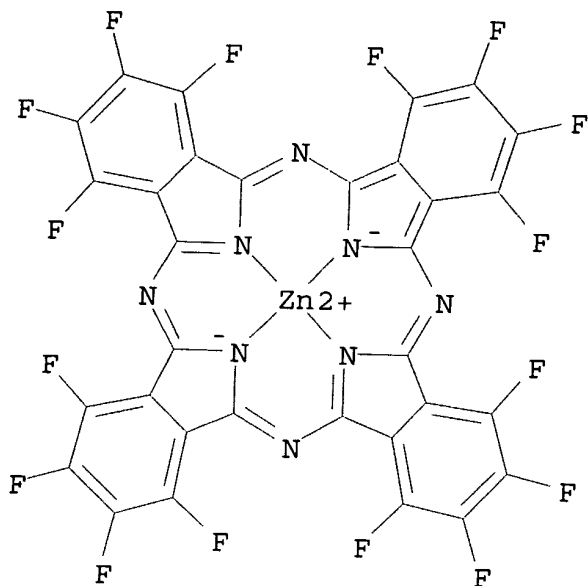
IT 31396-84-6

(tumor photodynamic therapy with hexadecafluoro zinc
phthalocyanine formulated in PEG-coated poly(lactic acid)
nanoparticles)

RN 31396-84-6 HCA

CN Zinc, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecafluoro-
29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa
.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)

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of sed
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CC 8-9 (Radiation Biochemistry)
 Section cross-reference(s): 14
 IT 31396-84-6

(tumor photodynamic therapy with hexadecafluoro zinc phthalocyanine formulated in PEG-coated poly(lactic acid) nanoparticles)

L59 ANSWER 10 OF 15 HCA COPYRIGHT 2002 ACS
 123:93153 PEG-coated poly(lactic acid) nanoparticles for the delivery of hexadecafluoro zinc phthalocyanine to EMT-6 mouse mammary tumors. Allemann, Eric; Brasseur, Nicole; Benrezzak, Ouhida; Rousseau, Jacques; Kudrevich, Svetlana V.; Boyle, Ross W.; Leroux, Jean-Christophe; Gurny, Robert; Van Lier, Johan E. (Fac. Med., Univ. Sherbrooke, Sherbrooke, PQ, J1H 5N4, Can.). J. Pharm. Pharmacol., 47(5), 382-7 (English) 1995. CODEN: JPPMAB. ISSN: 0022-3573.
 AB Hexadecafluoro zinc phthalocyanine (ZnPcF16), a second generation sensitizer for the photodynamic therapy of cancer, was incorporated in three vehicles: poly(DL-lactic acid) (PLA) nanoparticles, **polyethylene** glycol (PEG)-coated nanoparticles and a Cremophor EL (CRM) oil-water emulsion. Nanoparticles were prepd. by the salting-out procedure. Biodistribution of the dye was assessed by fluorescence in EMT-6 mammary tumor bearing mice after i.v. injection of 1 .mu.mol kg-1 ZnPcF16. Plain nanoparticles were rapidly retained by the reticuloendothelial system (RES) as reflected by the low area under the blood concn.-time curve (AUC0-168, 57 .mu.g h g-1). Little tumor uptake of the dye was obsd. with this formulation. In contrast, PEG-coated nanoparticles displayed a reduced RES uptake, leading to significantly higher blood levels over an extended period (t-1/2 30 h; AUC0-168 227 .mu.g h g-1) and enhanced tumor uptake. At 48 h post injection, tumor to

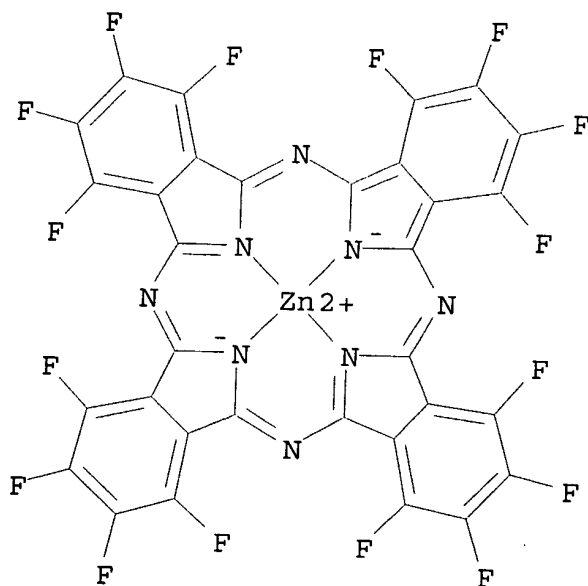
skin and tumor to muscle concn. ratios reached 3.5 and 10.8, resp. Blood levels of ZnPcF16 after administration as a CRM emulsion decreased faster than with PEG-coated nanoparticles (t-1/2 12 h), but since no early liver uptake was obsd., the AUC0-168 and the tumor uptake were only slightly lower. However, with the CRM formulation, a late liver uptake was obsd., reaching 51% of the injected dose after 7 days.

IT 31396-84-6

(biodistribution of hexadecafluoro zinc phthalocyanine for photodynamic therapy from PEG-coated poly(lactic acid) nanoparticles)

RN 31396-84-6 HCA

CN Zinc, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecafluoro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)



CC 63-6 (Pharmaceuticals)

Section cross-reference(s): 1

IT 31396-84-6

(biodistribution of hexadecafluoro zinc phthalocyanine for photodynamic therapy from PEG-coated poly(lactic acid) nanoparticles)

IT 25322-68-3, **Polyethylene** glycol 31587-11-8, Poly(DL-lactic acid) 51063-13-9

(biodistribution of hexadecafluoro zinc phthalocyanine for photodynamic therapy from PEG-coated poly(lactic acid) nanoparticles)

L59 ANSWER 11 OF 15 HCA COPYRIGHT 2002 ACS

120:31555 Polymers of macrocyclic metal chelators. Traylor, Teddy Gene; Byun, Young Seok (University of California, USA). PCT Int. Appl. WO

9306150 A1 19930401, 42 pp. DESIGNATED STATES: W: AU, BB, BG, BR, CA, CS, DE, FI, GB, HU, JP, KP, KR, LK, MG, MN, MW, NO, PL, RO, RU, SD, US; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NL, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1992-US8127 19920924. PRIORITY: US 1991-764593 19910924.

AB The title polymers, useful as oxidn. or epoxidn. catalysts, are prepd. by reacting a polybasic nucleophile with a substituted macrocyclic metal chelator bearing .gtoreq.1 leaving group .gtoreq.1 electroneg. substituent. Thus, heating 40 mg iron(III) tetrakis(pentafluorophenyl)porphyrin chloride with 18 mg Na₂S hydrate in 1 mL DMF under Ar at 160.degree. for 4 h gave 38 mg of a hard black solid.

IT 151810-30-9P 151893-78-6P

(prepn. of, as oxidn. and epoxidn. catalysts)

RN 151810-30-9 HCA

CN Iron, chloro[1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecafluoro-29H,31H-phthalocyaninato(2-)-N29,N30,N31,N32]-, (SP-5-12)-, polymer with sodium sulfide (Na₂S) and tris(pentafluorophenyl)phosphine (9CI) (CA INDEX NAME)

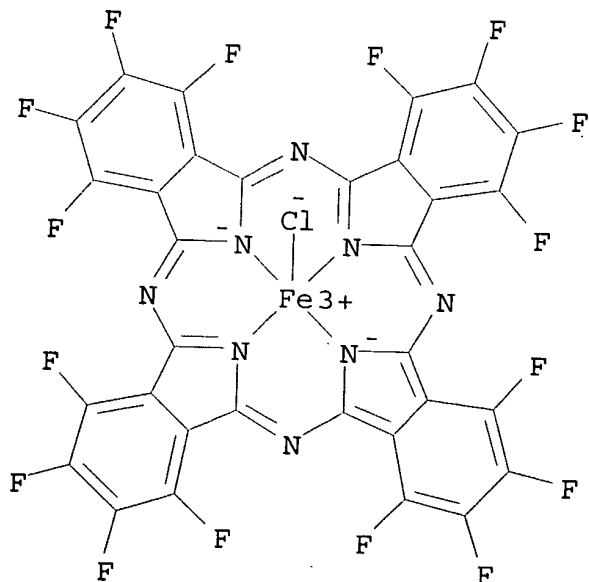
CM 1

CRN 142711-86-2

CMF C32 Cl F16 Fe N8

CCI CCS

CDES 7:SP-5-12



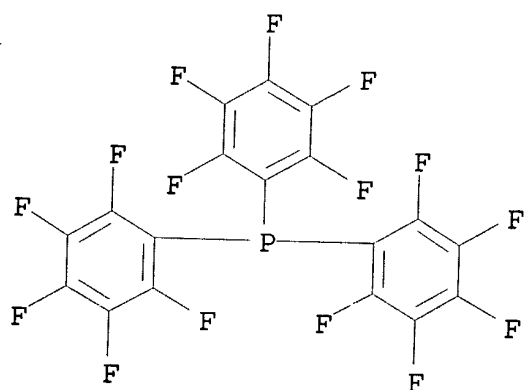
CM 2

CRN 1313-82-2
CMF Na2 S

Na-S-Na

CM 3

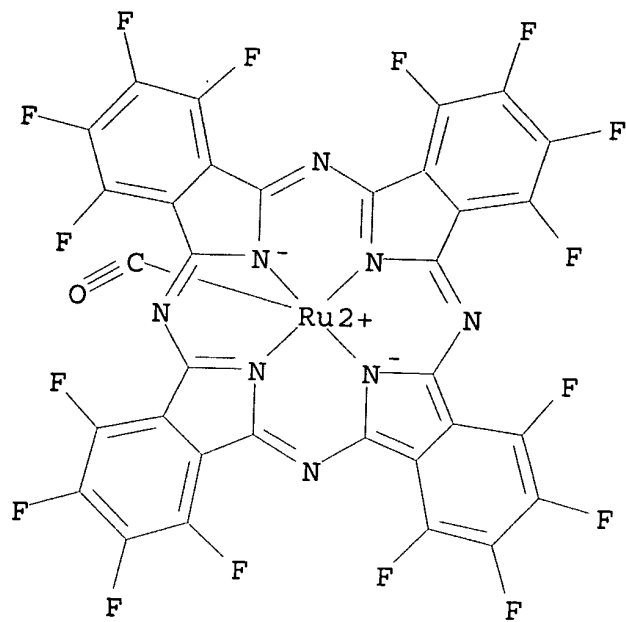
CRN 1259-35-4
CMF C18 F15 P



RN 151893-78-6 HCA
CN Ruthenium, carbonyl[1,2,3,4,8,9,11,12,15,16,17,18,22,23,24,25-hexadecafluoro-29H,31H-phthalocyaninato(2-)-N29,N30,N31,N32]-, (SP-5-31)-, polymer with sodium sulfide (Na2S) and tris(pentafluorophenyl)phosphine (9CI) (CA INDEX NAME)

CM 1

CRN 151893-77-5
CMF C33 F16 N8 O Ru
CCI CCS
CDES 7:SP-5-31



CM 2

CRN 1313-82-2

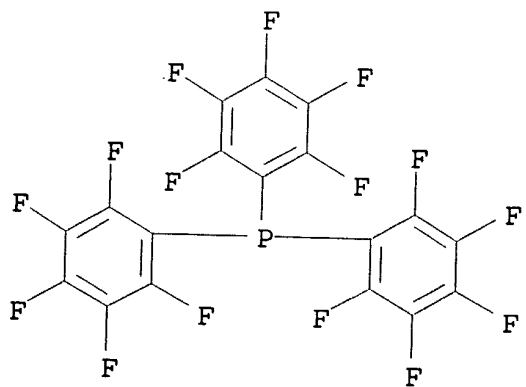
CMF Na2 S

Na-S-Na

CM 3

CRN 1259-35-4

CMF C18 F15 P



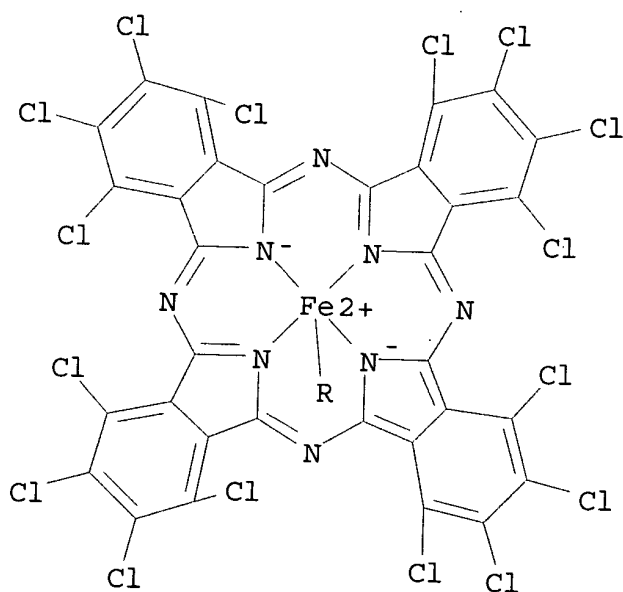
- IC ICM C08G073-06
 CC 35-5 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 67
 IT 135645-47-5P 135645-48-6P 135645-49-7P 151810-22-9P
 151810-23-0P 151810-24-1P 151810-25-2P 151810-26-3P
 151810-27-4P 151810-28-5P 151810-29-6P 151810-30-9P
 151810-32-1P 151810-33-2P 151810-35-4P 151893-78-6P
 (prep. of, as oxidn. and epoxidn. catalysts)
- L59 ANSWER 12 OF 15 HCA COPYRIGHT 2002 ACS
 119:84788 Color reaction of bismuth(II) with meso-tetrakis(4-sulfophenyl)porphyrin. Xia, Hua; Wang, Ping; Huang, Guifang (Dep. Appl. Chem., China Univ. Geosci., Wuhan, 430074, Peop. Rep. China). Fenxi Shiyanshi, 11(5), 51-3 (Chinese) 1992. CODEN: FENSE4.
 AB The color reaction of meso-tetrakis(4-sulfophenyl)porphyrin (TPPS4) with bismuth (III) in the presence of Hg(II) as a catalyst was studied. In HOAc-NaOAc medium at pH 5.00, the complex of bismuth with TPPS, is formed at room temp. within 10 min. The complex has a max. absorption at 462 nm with a molar absorptivity of 3.78 .times. 10⁵ L-1 mol.-1 cm-1. Beer's law is obeyed for bismuth(III) in the range of 0-10 .mu.g/25 mL. The compn. of the complex is Bi:TPPS4 = 2:3. The method has been applied to the detn. of bismuth(III) in ores with satisfactory results.
 IT 148949-36-4
 (visible spectrum of)
 RN 148949-36-4 HCA
 CN Bismuthate(12-), [.mu.-[[[4,4',4'',4'''-(21H,23H-porphine-5,10,15-20-tetrayl)tetrakis[benzenesulfonato]](6-)-N21,N22,N23,N24:N21,N22,N23,N24]]bis[[[4,4',4'',4'''-(21H,23H-porphine-5,10,15-20-tetrayl)tetrakis[benzenesulfonato]](6-)-N21,N22,N23,N24]di-, dodecahydrogen (9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 CC 79-6 (Inorganic Analytical Chemistry)
 IT 148949-36-4
 (visible spectrum of)
- L59 ANSWER 13 OF 15 HCA COPYRIGHT 2002 ACS
 116:266823 Photoconductivity of bridged polymer phthalocyanines. Meier, Hans; Albrecht, Wolfgang; Hanack, Michael (Staatl. Forschungsinst. Geochem., Bamberg, D-8600, Germany). Proc. SPIE-Int. Soc. Opt. Eng., 1559(Photopolym. Device Phys., Chem., Appl. 2), 89-100 (English) 1991. CODEN: PSISDG. ISSN: 0277-786X.
 AB Results of expts. on photocond. of 1-dimensional bridged polymeric phthalocyanines [PcML]_n consisting of different combinations of macrocycles, Pc, bridging ligands, L, and central metal atoms, M, are described. The spectral response and photoconductive gain strongly depend on the type of bridging the planar phthalocyanine rings. Rules for the development of phthalocyanine-based polymeric photoconductors by synthesis, e.g., with significant long wavelength sensitivity, are outlined.
 IT 81315-41-5

(photocond. of, effect of bridging ligands on)
 RN 81315-41-5 HCA
 CN Iron, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecachloro-
 29H,31H-phthalocyaninato(2-)-N29,N30,N31,N32](pyrazine-N1)-,
 (SP-5-21)-, homopolymer (9CI) (CA INDEX NAME)

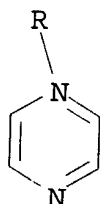
CM 1

CRN 81315-40-4
 CMF C36 H4 Cl16 Fe N10
 CCI CCS
 CDES 7:SP-5-21

PAGE 1-A



PAGE 2-A



CC 76-5 (Electric Phenomena)
 Section cross-reference(s): 38, 78
 IT 74591-77-8 81315-41-5 87156-20-5 93581-60-3

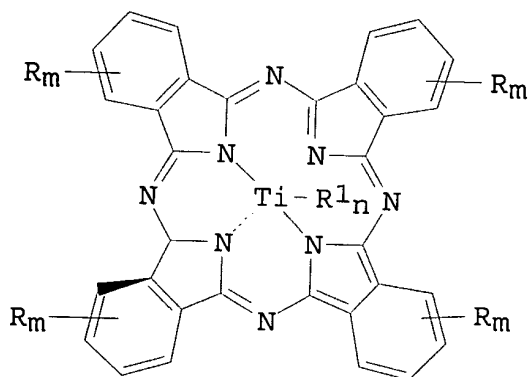
104574-83-6

(photocond. of, effect of bridging ligands on)

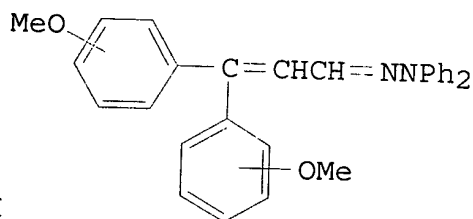
L59 ANSWER 14 OF 15 HCA COPYRIGHT 2002 ACS

105:181479 Dual layer photoreceptor for use in electrophotography.
Suzuki, Tetsumi; Murayama, Tetsuo; Ono, Hitoshi; Otsuka, Shigenori;
Nozomi, Mamoru (Mitsubishi Chemical Industries Co., Ltd., Japan).
Eur. Pat. Appl. EP 180931 A2 19860514, 29 pp. DESIGNATED STATES: R:
DE, FR, GB, IT. (English). CODEN: EPXXDW. APPLICATION: EP
1985-113923 19851031. PRIORITY: JP 1984-230982 19841101.

GI



I



II

AB A dual-layer electrophotog. photoreceptor having a high sensitivity up to the near IR region is composed of an electroconductive substrate carrying a charge carrier-generation layer contg. a Ti phthalocyanine deriv. (I; R = H, lower alkyl, lower alkoxy, allyloxy, NO₂, CN, OH, benzyloxy, or halo; R₁ = halo, alkoxy, or an O atom; m = 0-4; n = 1 or 2) and a polymer binder and a charge carrier-transport layer contg. a hydrazone compd. and a polymer binder. Thus, an aluminized polyester film was coated at 0.3 g/m² (dry) with a dispersion contg. I (R = H; R₁ = O; m = 0; n = 1) 0.4, poly(vinyl butyral) 0.2, and 4-methoxy-4-methyl-2-pentanone 30 parts and then with a soln. contg. II 90, Dianal BR-85 100, and PhMe 550 parts at 13 .mu.m. The resultant photoreceptor was corona discharge-treated at 5.5 kV in the dark and then the spectral sensitivity (exposure for decay of 1/2 of the surface potential with light at 0.4 .mu.W/cm²) was detd. to be 0.4 .mu.J/cm².

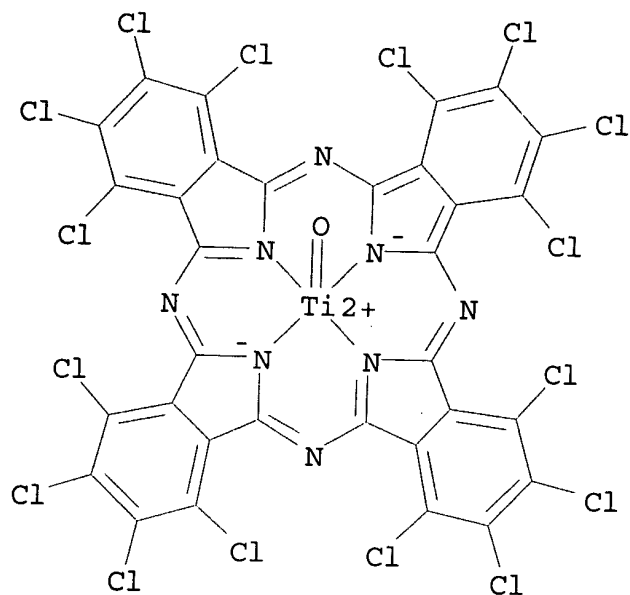
IT

(electrophotog. dual-layer photoreceptor with charge carrier-generating layer contg.)

RN

CN

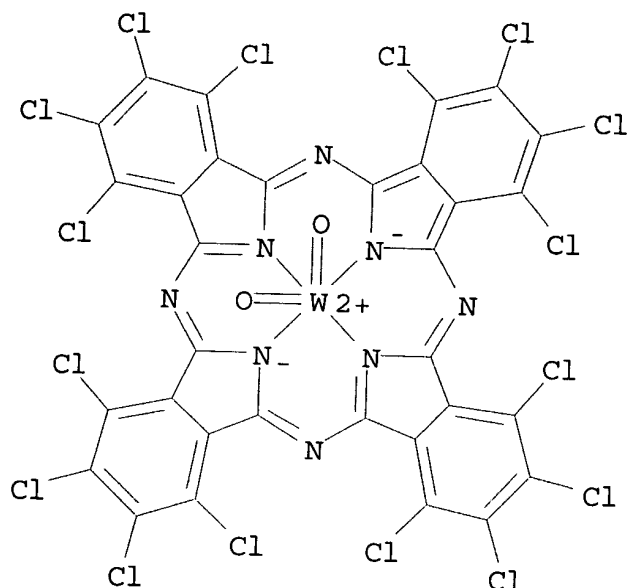
104844-31-7 HCA
Titanium, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecachloro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]oxo-, (SP-5-12)- (9CI) (CA INDEX NAME)



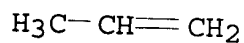
- IC ICM G03G005-14
ICS G03G005-06; C09B047-04
- CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- IT **Vinyl acetal polymers**
(butyrals, electrophotog. dual-layer photoreceptor with charge carrier-generating layer contg. titanium phthalocyanine deriv. and)
- IT 16903-42-7 26201-32-1 104719-53-1 104719-54-2 104719-55-3
104844-28-2 104844-29-3 104844-30-6 **104844-31-7**
(electrophotog. dual-layer photoreceptor with charge carrier-generating layer contg.)
- L59 ANSWER 15 OF 15 HCA COPYRIGHT 2002 ACS
- 84:43811 Epoxy compounds. Tamaki, Akihiro; Takahashi, Toru; Sudo, Isamu; Ozaki, Shoichiro (Mitsui Toatsu Chemicals, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 50084504 19750708 Showa, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1973-135261 19731205.
- AB In prepn. of epoxy compds. by reaction of org. peroxy compds. with **olefins**, phthalocyanines, polyphthalocyanines, or their nucleus-substituted compds. having a Group V or VI transition metal atom (except Mo) as the center metal atom were used as catalysts. Thus, a soln. of 7.5 g cumene contg. 80% cumene hydroperoxide, 12.2 g CH₂:CHMe (I), and 10 mg VPc (Pc = phthalocyaninato) was autoclaved 2 hr at 105.degree. to give 96.1% propylene oxide (II). Conversion of I was 58.9%. Cyclohexene oxide and n-1-hexene oxide were similarly prepd. VOPc, CrPc, WO₂Pc, VOpolyPC, and WO₂polyPc, [polyPc = polyphthalocyaninato; VO, Cr, WO₂ = center atom(s)] were also used in place of VPc.
- IT **57948-08-0**

(catalysts for epoxidn. of olefins)

RN 57948-08-0 HCA
CN Tungsten, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecachloro-29H,31H-phthalocyaninato(2-)-N29,N30,N31,N32]dioxo-, (OC-6-12)-(9CI) (CA INDEX NAME)



IT 115-07-1, reactions
(epoxidn. of, catalysts for)
RN 115-07-1 HCA
CN 1-Propene (9CI) (CA INDEX NAME)



IC C07D; B01J
CC 27-2 (Heterocyclic Compounds (One Hetero Atom))
Section cross-reference(s): 40
ST epoxidn catalyst **olefin**; propene epoxidn catalyst;
cyclohexene epoxidn catalyst; hexene epoxidn catalyst;
phthalocyanine catalyst; polyphthalocyanine catalyst
IT 29H,31H-Phthalocyanine, deriv., polymer, tungsten and vanadium
complexes
Tungsten, polyphthalocyanine complexes
Vanadium, polyphthalocyanine complexes
(catalysts for epoxidn. of **olefins**)
IT 13930-88-6 14285-60-0 14376-21-7 57948-07-9 57948-08-0
57965-68-1 57997-89-4
(catalysts for epoxidn. of **olefins**)
IT 80-15-9
(epoxidn. of **olefins** by)
IT 110-83-8, reactions 115-07-1, reactions 592-41-6

(epoxidn. of, catalysts for)

=> d l60 1-24 ti

- L60 ANSWER 1 OF 24 HCA COPYRIGHT 2002 ACS
 TI Reactivity of electrodes modified with substituted metallophthalocyanines. Correlations with redox potentials, Hammett parameters and donor-acceptor intermolecular hardness
- L60 ANSWER 2 OF 24 HCA COPYRIGHT 2002 ACS
 TI Synthesis of polyaminosiloxane matrices with coordinated cobalt(II) and iron(III) complexes with porphyrin and phthalocyanine derivatives
- L60 ANSWER 3 OF 24 HCA COPYRIGHT 2002 ACS
 TI Donor-acceptor intermolecular hardness on charge transfer reactions of substituted cobalt phthalocyanines
- L60 ANSWER 4 OF 24 HCA COPYRIGHT 2002 ACS
 TI Metal-centered redox chemistry of substituted cobalt phthalocyanines adsorbed on graphite and correlations with MO calculations and Hammett parameters. Electrocatalytic reduction of a disulfide
- L60 ANSWER 5 OF 24 HCA COPYRIGHT 2002 ACS
 TI Photocatalytic decomposition of trichlorophenol by zinc(II) phthalocyanine derivatives in aerated organic solvents
- L60 ANSWER 6 OF 24 HCA COPYRIGHT 2002 ACS
 TI Reactivity of immobilized cobalt phthalocyanines for the electroreduction of molecular oxygen in terms of molecular hardness
- L60 ANSWER 7 OF 24 HCA COPYRIGHT 2002 ACS
 TI Process and **catalysts** for the preparation of C7-16 cycloalkanols and cycloalkanones from cycloalkanes
- L60 ANSWER 8 OF 24 HCA COPYRIGHT 2002 ACS
 TI Paradoxical effect of the redox potential of adsorbed metallophthalocyanines on their activity for the oxidation of 2-mercaptoethanol. Inner versus outer sphere electrocatalysis
- L60 ANSWER 9 OF 24 HCA COPYRIGHT 2002 ACS
 TI Manufacture of amino group-containing fluorophthalocyanine compounds with good far-IR absorption
- L60 ANSWER 10 OF 24 HCA COPYRIGHT 2002 ACS
 TI Cu²⁺-phthalocyanine and Co²⁺-perfluorophthalocyanine incorporated inside Y faujasite and mesoporous MCM-41 as heterogeneous **catalysts** for the oxidation of cyclohexane
- L60 ANSWER 11 OF 24 HCA COPYRIGHT 2002 ACS
 TI Direct oxidation of propane to isopropanol

- L60 ANSWER 12 OF 24 HCA COPYRIGHT 2002 ACS
 TI Linear versus volcano correlations between electrocatalytic activity and redox and electronic properties of metallophthalocyanines
- L60 ANSWER 13 OF 24 HCA COPYRIGHT 2002 ACS
 TI Coated implantable medical device
- L60 ANSWER 14 OF 24 HCA COPYRIGHT 2002 ACS
 TI Oxidation of cyclohexane over copper phthalocyanines encapsulated in zeolites
- L60 ANSWER 15 OF 24 HCA COPYRIGHT 2002 ACS
 TI Oxyhalogenation of aromatics over copper phthalocyanines encapsulated in zeolites
- L60 ANSWER 16 OF 24 HCA COPYRIGHT 2002 ACS
 TI Direct conversion of methane to methanol
- L60 ANSWER 17 OF 24 HCA COPYRIGHT 2002 ACS
 TI Preparation and use of metal complexes of monosulfonated derivs. of certain porphyrins and phthalocyanines
- L60 ANSWER 18 OF 24 HCA COPYRIGHT 2002 ACS
 TI **Catalytic** oxidation of mercaptans by charcoal-supported sterically hindered cobalt(II) phthalocyanines
- L60 ANSWER 19 OF 24 HCA COPYRIGHT 2002 ACS
 TI Electrochemistry of zeolite-encapsulated metal complexes
- L60 ANSWER 20 OF 24 HCA COPYRIGHT 2002 ACS
 TI Perchlorinated phthalocyanines: spectroscopic properties and surface electrochemistry
- L60 ANSWER 21 OF 24 HCA COPYRIGHT 2002 ACS
 TI Hexadecafluoro- and octacyanophthalocyanines as electrocatalysts for the reduction of dioxygen
- L60 ANSWER 22 OF 24 HCA COPYRIGHT 2002 ACS
 TI Perchlorinated phthalocyanines: spectroscopic properties and surface electrochemistry
- L60 ANSWER 23 OF 24 HCA COPYRIGHT 2002 ACS
 TI Comparison between the chemical and electrochemical **catalysis** by tetraphenylporphyrin and phthalocyanine complexes
- L60 ANSWER 24 OF 24 HCA COPYRIGHT 2002 ACS
 TI Dehydrogenation reactions, **catalyzed** by metallophthalocyanines. Change of mechanism caused by electron attracting substituents on the **catalyst**

=> d 160 23 cbib abs hitstr hitind

L60 ANSWER 23 OF 24 HCA COPYRIGHT 2002 ACS

80:140434 Comparison between the chemical and electrochemical **catalysis** by tetraphenylporphyrin and phthalocyanine complexes. Manassen, J. (Dep. Plast. Res., Weizmann Inst. Sci., Rehovot, Israel). J. Catal., 33(1), 133-7 (English) 1974. CODEN: JCTLA5.

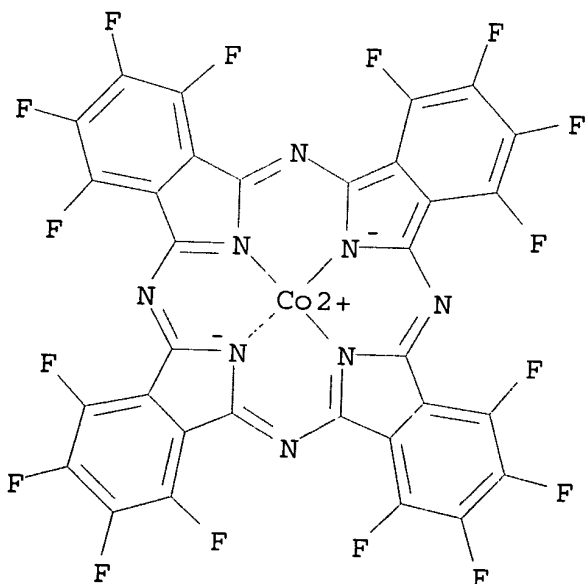
AB **Catalytic** electrodes were prep'd. by mixing C black, on which the **catalyst** (tetraphenylporphyrin) or phthalocyanine complexes) was pptd., with a Teflon emulsion and painting the paste obtained on a 100-mesh metal gauze. Good wet-proofed electrodes (of possible use in fuel cells) were obtained by heating at 250.degree. for 1 hr in Ar. O was passed over the electrode, in contact with the electrolyte, and current vs. potential curves were plotted and overvoltages were obtained from these curves. Complexes with Fe²⁺, Fe³⁺, Co²⁺ were studied. The influence of the fluorination of the phthalocyanine complexes is shown for Co and Fe phthalocyanine. The electrochem. redn. of H₂O₂ in the absence of O was also studied.

IT 52629-20-6

(carbon black electrodes contg., oxygen overpotentials on)

RN 52629-20-6 HCA

CN Cobalt, [1,2,3,4,8,9,10,11,15,16,17,18,22,23,24,25-hexadecafluoro-29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)-(9CI) (CA INDEX NAME)



CC 77-2 (Electrochemistry)

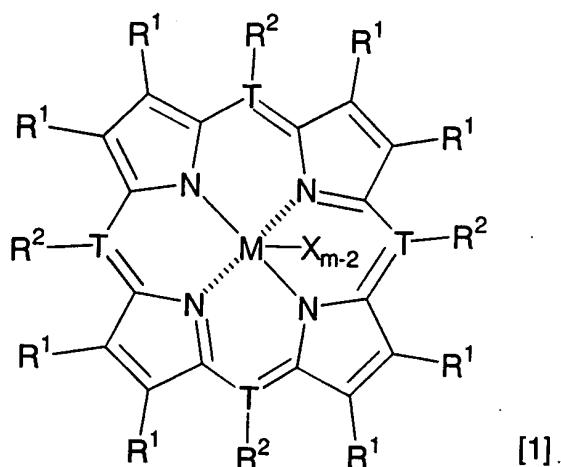
Section cross-reference(s): 67, 78

ST chem electrochem **catalysis** metal complex;

- tetraphenylporphyrin metal **catalyst** oxygen; phthalocyanine
 metal **catalyst** oxygen; iron complex **catalysis**
 redn oxygen; cobalt complex **catalysis** redn oxygen; copper
 complex **catalysis** redn oxygen
- IT Reduction, electrochemical
 (of hydrogen peroxide and oxygen, tetraphenylporphyrin and
 phthalocyanine complexes on **catalytic** electrodes for)
- IT Fluorination
 (of phthalocyanine complexes, redn. of hydrogen peroxides and
 oxygen by **catalytic** electrodes in relation to)
- IT 132-16-1 147-14-8 3317-67-7 14172-90-8 14172-91-9
 16591-56-3 23844-93-1 29484-63-7 34808-44-1 51772-46-4
 51772-47-5 52629-20-6
 (carbon black electrodes contg., oxygen overpotentials on)
- IT 7722-84-1, reactions 7782-44-7, reactions
 (redn. of, electrochem., **catalytic** electrodes for)

WHAT IS CLAIMED IS:

1. A catalyst component for addition polymerization comprising (A) a compound containing an atom of the Group ^{Non-IUPAC nomenclature} II to the Group XII or Lanthanide series of the Periodic Table of the Elements, in which the lowest energy level of unoccupied molecular orbital having the valence p-type atomic orbital of the atom of the Group II to the Group XII or Lanthanide series as a main component (wherein the coefficient represented by a linear combination is 0.4 or more) is calculated to be 0.008 atomic unit (Hartree) or less by the calculation of density functional method (B3LYP/3-21G level).
2. The catalyst component according to claim 1, wherein the compound (A) is a porphyrin or phthalocyanine complex in which the metal atom of the Group II to the Group XII or Lanthanide series is coordinated.
3. The catalyst component according to claim 2, the compound (A) is a compound represented by the general formula [1]:



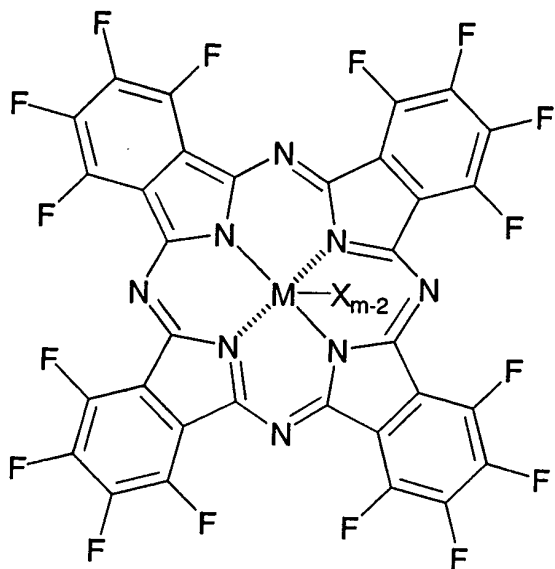
(wherein M represents an atom of the Group II to the Group XII or Lanthanide series of the Periodic Table, T represents an atom of the ^{C, Si, Ge, Sn, Pb} Group XIV or ^{N, P, As, Sb, Bi} Group XV of the Periodic Table, and all of T's may be mutually the same or different. Each of R¹ and R² independently is a hydrogen atom, a halogen atom, a hydrocarbon group or a halogenated hydrocarbon group, all of R¹'s and all of R²'s may be mutually the same or different, and may mutually form a ring. X represents a hydrogen atom, a halogen atom, a hydrocarbon group or a hydrocarbon oxy group, and when a plural number of X's exist, they may be mutually the same or different. m represents a valence of M.)

4. A catalyst component according to Claim 3, wherein at least one of R¹ and R² in the general formula [1] is an electron-withdrawing group.

5. A catalyst for addition polymerization according to Claim 4, wherein the electron-withdrawing group is

a fluorine, chlorine or bromine atom.

6. A catalyst component according to Claim 5, wherein the compound(A) is a compound represented by the general formula [2]:



(wherein M represents an atom of the Group II to the Group XII excluding Cu or Lanthanide series of the Periodic Table, X represents a hydrogen atom, a halogen atom, a hydrocarbon group or a hydrocarbon oxy group, and when a plural number of X's exist, they may be mutually the same or different. m represents a valence of M.)

7. The catalyst component according to Claims 2, wherein M is an atom of the Group ^{Co, Rh, Ir} IX or Group ^{Zn, Cd, Hg} XII.

8. A catalyst for addition polymerization obtained by contacting the compound (A) of claim 1, a metal compound (B) selected from the group consisting of compounds represented by the general formula [4]:



(wherein M^1 is a metal atom of the Group III³ to the Group XIII or Lanthanide series; L is a group having cyclopentadienyl type anion skeleton or a group containing a hetero atom, a plurality of L's may be linked directly, or through a residual group containing a carbon atom, a silicon atom, a nitrogen atom, an oxygen atom, a sulfur atom or a phosphorous atom; X is a halogen atom or a hydrocarbon group; "a" represents a number satisfying $0 < a \leq 8$; and "b" represents a number satisfying $0 < b \leq 8$.) and μ -oxo type compounds thereof.

9. A catalyst for addition polymerization obtained by contacting the compound (A) of claim 1, a metal compound (B) selected from the group consisting of compounds represented by the general formula [4]:



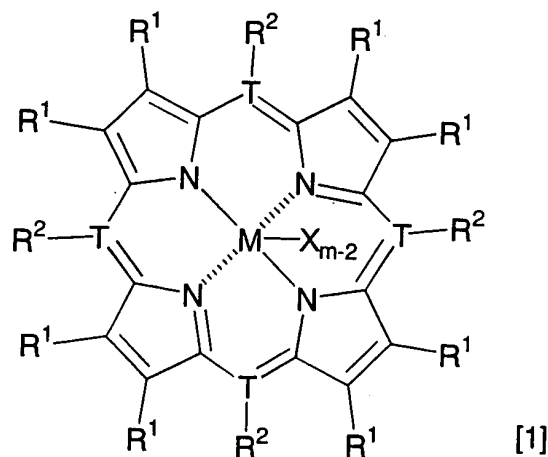
(wherein M^1 is a metal atom of the Group III to the Group XIII or Lanthanide series; L is a group having cyclopentadienyl type anion skeleton or a group containing a hetero atom, a plurality of L's may be linked directly, or through a residual group containing a carbon atom, a silicon atom, a nitrogen atom, an oxygen atom, a sulfur atom or a phosphorous atom; X is a halogen atom or a hydrocarbon group; "a" represents a number satisfying $0 < a \leq 8$; and "b" represents a number satisfying $0 < b \leq 8$.) and μ -oxo type compounds thereof, and an organoaluminum compound (C).

10. The catalyst according to claim 8, wherein the

compound (A) is a porphyrin or phthalocyanine complex in which a metal atom of the Group II to the Group XII is coordinated.

11. The catalyst according to claim 9, wherein the compound (A) is a porphyrin or phthalocyanine complex in which a metal atom of the Group II to the Group XII is coordinated.

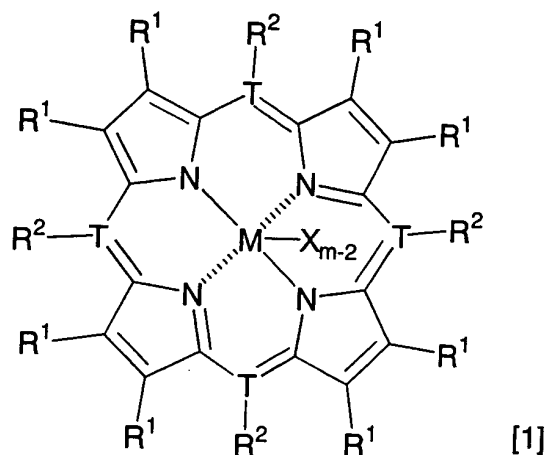
12. The catalyst according to claim 10, the compound (A) is a compound represented by the general formula [1]:



(wherein M represents an atom of the Group II to the Group XII or Lanthanide series of the Periodic Table, T represents an atom of the Group XIV or Group XV of the Periodic Table, and all of T's may be mutually the same or different. Each of R¹ and R² independently is a hydrogen atom, a halogen atom, a hydrocarbon group or a halogenated hydrocarbon group, all of R¹'s and all of R²'s may be mutually the same or different, and may mutually form a ring. X represents a hydrogen atom, a

halogen atom, a hydrocarbon group or a hydrocarbon oxy group, and when a plural number of X's exist, they may be mutually the same or different. m represents a valence of M.)

- 5 13. The catalyst according to claim 11, the compound (A) is a compound represented by the general formula [1]:



- (wherein M represents an atom of the Group II to the Group XII or Lanthanide series of the Periodic Table, T represents an atom of the Group XIV or Group XV of the Periodic Table, and all of T's may be mutually the same or different. Each of R¹ and R² independently is a hydrogen atom, a halogen atom, a hydrocarbon group or a halogenated hydrocarbon group, all of R¹'s and all of R²'s may be mutually the same or different, and may mutually form a ring. X represents a hydrogen atom, a halogen atom, a hydrocarbon group or a hydrocarbon oxy group, and when a plural number of X's exist, they may be mutually the same or different. m represents a valence
- 10
- 15

of M.)

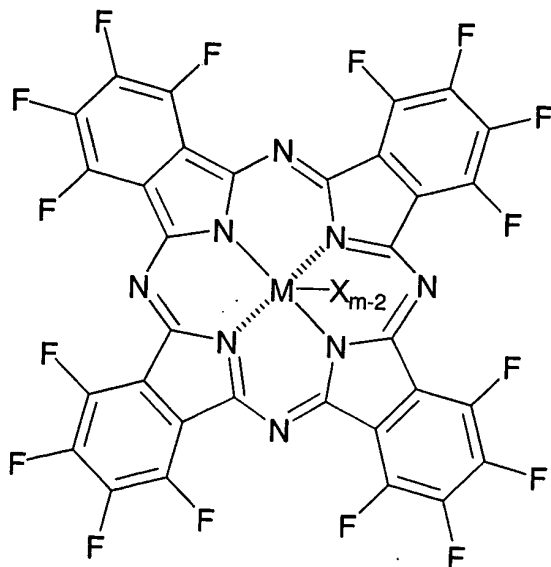
14. The catalyst according to Claim 12, wherein at least one of R^1 and R^2 in the general formula [1] is an electron-withdrawing group.

15. The catalyst according to Claim 13, wherein at least one of R^1 and R^2 in the general formula [1] is an electron-withdrawing group.

16. The catalyst according to Claim 14, wherein the electron-withdrawing group is a fluorine, chlorine or bromine atom.

17. The catalyst according to Claim 15, wherein the electron-withdrawing group is a fluorine, chlorine or bromine atom.

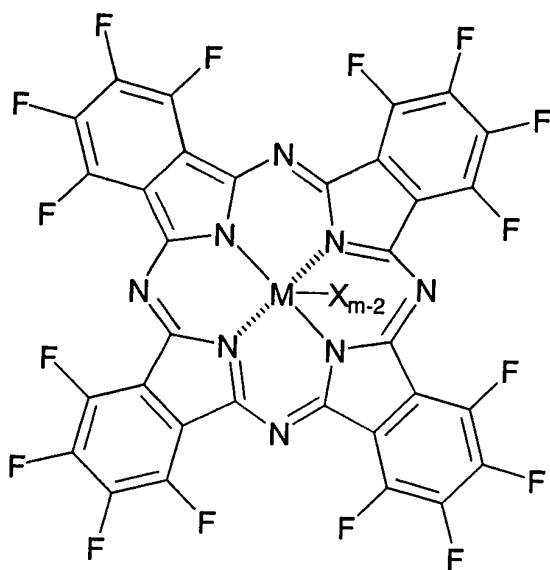
18. The catalyst according to Claim 16, wherein the compound is a compound represented by the general formula [2]:



(wherein M represents an atom of the Group II to the Group

XII excluding Cu, or Lanthanide series of the Periodic Table, X represents a hydrogen atom, a halogen atom, a hydrocarbon group or a hydrocarbon oxy group, and when a plural number of X's exist, they may be mutually the same or different. m represents a valence of M.)

19. The catalyst according to Claim 17, wherein the compound is a compound represented by the general formula [2]:



[2]

(wherein M represents an atom of the Group II to the Group XII excluding Cu or Lanthanide series of the Periodic Table, X represents a hydrogen atom, a halogen atom, a hydrocarbon group or a hydrocarbon oxy group, and when a plural number of X's exist, they may be mutually the same or different. m represents a valence of M.).

20. The catalyst according to Claims 18, wherein M is an atom of the Group IX or Group XII.

21. The catalyst according to Claims 19, wherein

M is an atom of the Group IX or Group XII.

22. The catalyst according to claim 8, wherein the compound(B) is a metallocene compound.

23. The catalyst according to claim 9, wherein the
5 compound(B) is a metallocene compound.

~~24.~~ A process for producing an addition polymer, which comprises polymerizing an addition polymerizable monomer in the presence of the catalyst of claim 8.

25. A process for producing an addition polymer,
10 which comprises polymerizing an addition polymerizable monomer in the presence of the catalyst of claim 9.

26. A process for producing an addition polymer, which comprises polymerizing an addition polymerizable monomer in the presence of the catalyst of claim 22.

27. A process for producing an addition polymer,
15 which comprises polymerizing an addition polymerizable monomer in the presence of the catalyst of claim 23.

28. The process according to Claim 24, wherein the addition polymerizable polymer is an olefin.

29. The process according to Claim 25, wherein the
20 addition polymerizable polymer is an olefin.

30. The process according to Claim 28, wherein the olefin is a mixture of ethylene and α -olefin.

31. The process according to Claim 29, wherein the
25 olefin is a mixture of ethylene and α -olefin.

ABSTRACT OF THE DISCLOSURE

5 A catalyst component for addition polymerization
containing (A) a compound containing an atom of the Group
II to the Group XII or Lanthanide series in which the
lowest energy level of unoccupied molecular orbital
having the valence p-type atomic orbital of the atom of
the Group II to the Group XII or Lanthanide series as
10 a main component, wherein the coefficient represented
by a linear combination, is 0.4 or more) is calculated
to be 0.008 atomic unit (Hartree) or less by the
calculation of density functional method (B3LYP/3-21G
level), a catalyst for addition polymerization
15 containing the same, and a process for producing an
addition polymer with the catalyst.